

Harry Potter

A HISTORY OF MAGIC



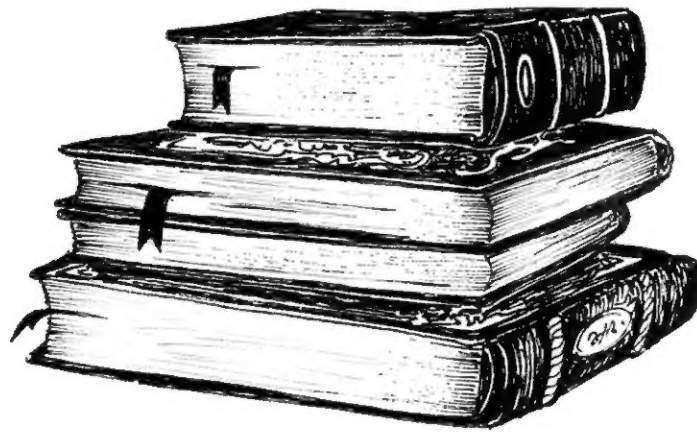
A JOURNEY THROUGH

The Hogwarts
Curriculum

Books 1-4

Harry Potter

A HISTORY OF MAGIC



A JOURNEY THROUGH

The Hogwarts Curriculum

Books 1-4

Illustrations by
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Pottermore

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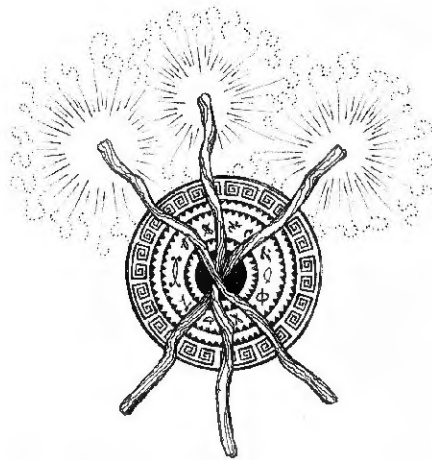
INTRODUCTION TO THE SERIES

A JOURNEY THROUGH CHARMS AND DEFENCE AGAINST THE DARK ARTS

A JOURNEY THROUGH POTIONS AND HERBOLOGY

A JOURNEY THROUGH DIVINATION AND ASTRONOMY

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INTRODUCTION TO THE SERIES

The history of magic is as long as time and as wide as the world. In every culture, in every age, in every place and, probably, in every heart, there is magic.

This series of eBooks will reveal the world of magic and unlock its secrets. It will go back thousands of years. It will travel to the far corners of the world. It will reach the stars. It will explore under the earth. It will decipher mysterious languages. We'll encounter some of the most colourful characters in history. We'll discover the curious incidents and the truths behind legends. We'll see how, in the quest to discover magic, practitioners laid the foundations of science.

This series, structured around lessons from the Hogwarts curriculum, will show how this long and rich history has nourished the fictional world of Harry Potter.

The starting point for these eBooks was the exhibition *Harry Potter: A History of Magic*, which opened at the British Library in October 2017, twenty years after *Harry Potter and the Philosopher's Stone* was first published in the UK. For the exhibition, curators spent over a year searching through the 150 million items that the British Library holds to find the most magical. Then they sourced special artefacts to be loaned from other notable institutions. In October 2018, the New-York Historical Society took on the British Library exhibition, adding books and artefacts from their own collection, as well as other fascinating loans.

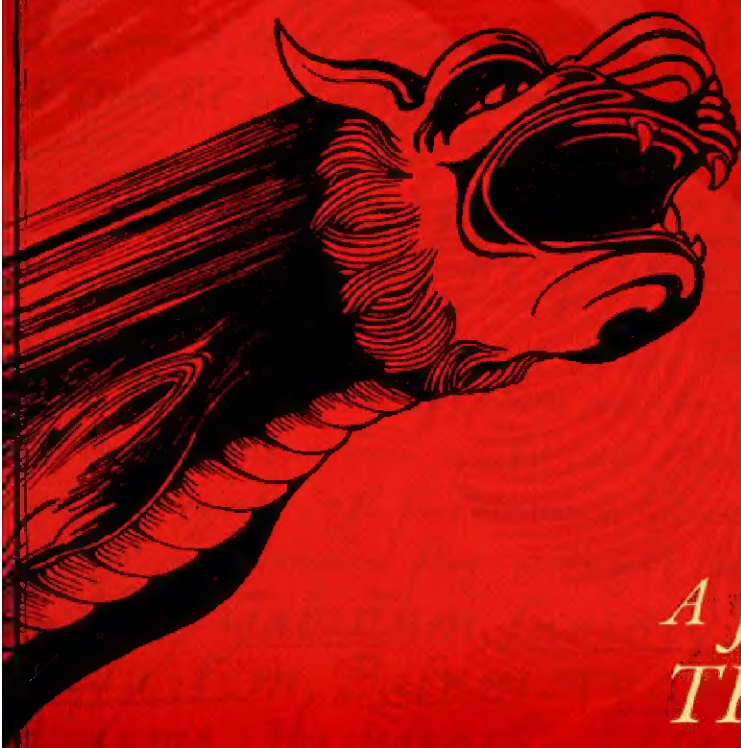
This series of four eBook shorts contains worldly wonders from both exhibitions, exploring J.K. Rowling's magical inventions alongside their cultural and historical forebears. Throughout are links between the wizarding world and our own, told through extraordinary stories from the history of magic.



BRITISH
LIBRARY

Harry Potter

A HISTORY OF MAGIC



*A JOURNEY
THROUGH*

Charms & Defence
Against the Dark Arts

1

Harry Potter

A HISTORY OF MAGIC



A JOURNEY THROUGH

Charms & Defence
Against the Dark Arts

Illustrations by
Rohan Daniel Eason

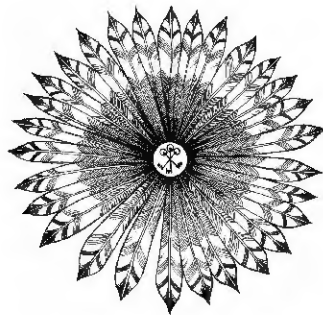
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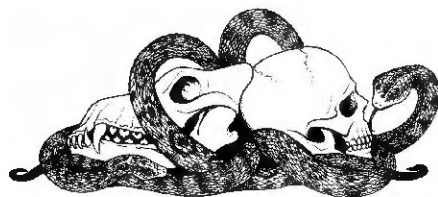


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CHARMS

PART 1: FROM ABRACADABRA TO AMORTENTIA

Harry Potter simply wouldn't be Harry Potter without spells and charms. There would be no *Wingardium Leviosa*, no *Riddikulus* and no charmed objects like the Marauder's Map – not even a flying broomstick.

To become invisible, to make someone fall in love with you, to transform into another creature – these are all things that people have believed in, yearned for or feared throughout history. There's nothing more magical than a magic charm.

And perhaps one of the most powerful magic words of all is 'Abracadabra!'



'Avada Kedavra!' *Moody roared.*

There was a flash of blinding green light and a rushing sound, as though a vast, invisible something was soaring through the air — instantaneously the spider rolled over onto its back, unmarked, but unmistakably dead.

Harry Potter and the Goblet of Fire

Known today for its use by stage magicians when they perform illusions, 'Abracadabra' is probably familiar to us all. But it has more sinister connotations as well. Londoners used to paint it on their doors to ward off the plague in the 17th century. The infamous 20th-century English occultist Aleister Crowley believed it to be a word that held great power. Its power is certainly felt in the Harry Potter stories.



Its origins stretch back to Roman times. The word is first documented in the *Liber Medicinalis* ('*The Book of Medicine*'), written by Quintus Serenus Sammonicus, who lived in the 2nd century AD and was physician to the Roman Emperor Caracalla. Sammonicus was actually executed by

Caracalla in 212 AD, as part of a broader purge, but before then he'd suggested using the term he had coined as a cure or prevention against catching malaria, which he called *hemitritaeos*. Sufferers were instructed to write down the 'Abracadabra' charm repeatedly, leaving out one letter each time. This would create a 'cone-shaped' text, which looked like an inverted triangle standing on its point. The charm was then worn as an amulet designed to drive out fever. Who would have thought that battling mosquitoes would set the stage for the most dangerous spell in the wizarding world?



While 'Abracadabra' is a famous word that we know from a historically significant text, some charms have almost been lost to history. One of these was found on a tiny fragment of paper tucked inside an 18th-century magical text from Ethiopia, but it has the potential to be particularly powerful: it tells you how to turn yourself into a lion.

It was quite common in Ethiopia for magical practitioners to make collections of charms, spells and names of plants and their properties, which were copied down. The invocation to turn yourself into a lion was found hidden in one of the resulting handbooks. It was written in an ancient Ethiopian language – Ge'ez – and it's hard to tell just how old the fragment is. It might date from the same time, or from even earlier than the manuscript in which it was found.

Although Ethiopia was declared a Christian country in the 3rd century AD, it didn't lose its Babylonian, Egyptian and Islamic influences. The indigenous African magic tradition was vying with new influences from outside the culture. This particular talisman to change yourself into a lion or serpent

is an early example of the type of Transfiguration that we know so well from Professor McGonagall's classes.

Changing yourself into a lion was not a straightforward process: it required outside assistance. This came in the form of specialised Ethiopian magic practitioners called Däbtäras. Why you might seek them out varied, but if you wanted to transform yourself into a lion or a similar beast, it might be because you were at war – or in need of an aggressive, attacking presence.

Whether the magic worked or not was said to depend on outside circumstances. Sometimes the magic was interfered with by a witch or a counter-prayer against the spell itself. We might think today that the idea of a charm working like this is a little hard to believe, but Däbtäras have practised in Ethiopia for centuries and continue to do so.

'Transfiguration is some of the most complex and dangerous magic you will learn at Hogwarts,' she said. 'Anyone messing around in my class will leave and not come back. You have been warned.'

Then she changed her desk into a pig and back again.

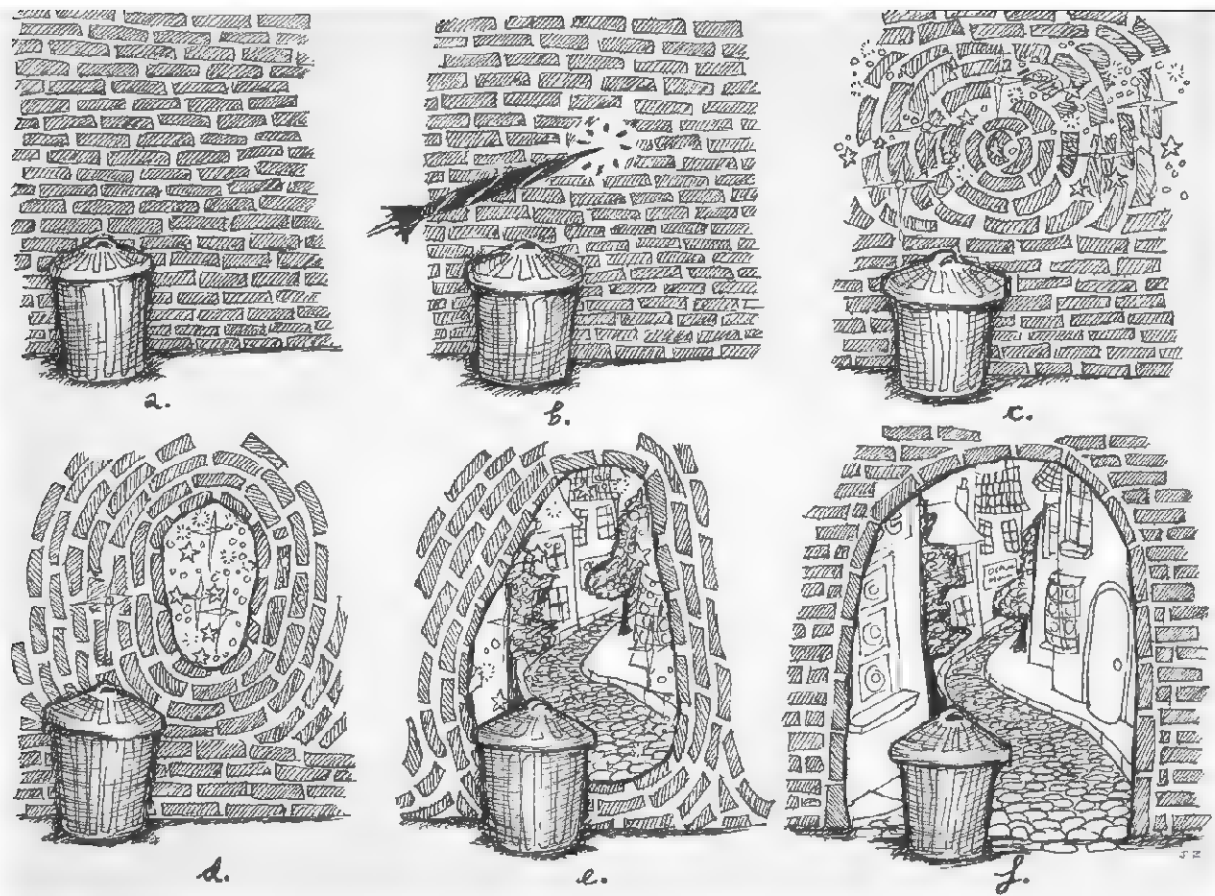
Professor McGonagall - *Harry Potter and the Philosopher's Stone*



Charms have the power to allow entry into Diagon Alley, and are also key to keeping its secrets. The bustling centre of wizarding retail therapy is where Harry acquires his holly

and phoenix-feather wand (and other necessities) before setting off for his first term at Hogwarts.

When J.K. Rowling was planning how a wizard or witch would access Diagon Alley, she created a six-stage drawing, like a cartoon strip. The first stage shows an ordinary brick wall with an old metal dustbin in front of it. In the second, an umbrella touches a brick in the middle of the wall. In the third, the bricks start to spin. In the fourth and fifth, a round opening forms and you can begin to see the old-fashioned street. Finally, there is a fully formed archway, and Diagon Alley is revealed.



Drawing of the opening to Diagon Alley by J.K. Rowling (1990)

The brick he had touched quivered – it wriggled – in the middle, a small hole appeared – it grew wider and wider – a second later they were facing an archway large enough even for Hagrid, an archway on to a cobbled street which twisted and turned out of sight.

Harry Potter and the Philosopher's Stone

Underlying this delightful magical process is carefully crafted logic. It's not simply a case of flicking a wand and, Lo! Here appears Diagon Alley. There is a specific brick that needs to be tapped, a little like a combination lock.

J.K. Rowling rooted Harry Potter in historical and folkloric traditions and brought it all into the modern world. She created a magic world that co-exists with our own, and specified the careful boundaries and techniques of how its magic worked. Her process was to figure this out visually as much as in the drafts of her writing, making the magic more vivid and real, and allowing us vanishing glimpses into what wizarding life might look like. It was clear early on that this was not your typical magical story.



We've seen how charms could be used for transfiguring into other creatures and transporting yourself into new magical places, but there were also charms that could be used for more malign purposes, such as getting the upper hand over your enemies.

There was a charm from the Egyptian city of Thebes, dating from the 4th century AD, which let you do just that.

In the papyrus document later found that described it, there were seven pages of incantations, which included charms to discover thieves and to reveal the secret thoughts of men. The spells and charms were written in Ancient Greek and one page showed you how to transform a ring into a charm.

ΟΕΣΚΑΙΛΕΓΕ ΜΕΧΥΑΔΗΜΩΝ ΟΥΤ
 ΕΙΣΕΤΟΥΤΟΕΙ ΜΑΡΑΔΙΔΑΜΙΣ· ΙΤΩΝΗ Ο
 ΠΩΣ ΜΗ ΠΟΙΗΣΗΤΟ ΦΠΡΑΤΗΛ ΕΙΤΑ
 ΧΩΣΑΚΑ ΠΕΡΧΟΥ
 ΚΡΕΣΟΝ ΔΕΛΠΕΙΣ ΕΝΙΟΥ ΜΕΝΗΣ ΕΣΤΙΝ ΑΕ
 ΤΑΡΑΦ· ΕΙΣΤΟΝ ΚΥΚΛΟΤΑΥΤΑ Δ ΡΟΔ
 ΜΕΘΕΡΕΣ ΧΙΠΔΑ· ΕΑΝΤΑ· ΙΔΕΟΥΝΗ
 ΛΚΗ· ΙΔΗ ΔΑΡΥΝΚΑ ΜΑΝΗΛΑ
 ΜΗ ΠΡΑΧΟΤΗ ΤΩΤΟ ΑΠΡΑΜΜΕΦΟΤΟΝ
 ΧΡΟΝΟΝ ΚΕΧΩΤΟΥ ΟΚΡΙΚΟΣ ΟΥΤΟΣ
 ΚΑΤΑΛΗΓΟΝ ΑΕΣ ΝΟΙΣ ΤΟΙΣ ΚΑΚΟΙΣ
 ΤΑ ΚΑΘΟΥΤΩ ΚΑΤΑΘΟΥ· ΑΕΚΡΙΚΟΣ
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 ΕΒΜΕΣΙΔΑΝΦ ΑΝΙΟΦΟΡΙΩΝ ΙΑΝΗ
 ΦΘΟΥΘ· ΕΝΦΡΗΟΝ ΕΤΕΡΟΕΘΙΛΕΝ
 ΙΑΩΣΑΒΔΩΘΡΒΛΑΙΩΝ ΛΙΩΔΗ
 ΟΣΟΡΝΩΦΡΙ ΕΝΦΡΗ ΦΡΗ ΦΘΑΧΡΩ
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 ΟΝ ΙΔΥΕΘΝ ΠΟΙΕΥΣ



Spells like these weren't supplications or prayers, but commands to demonic entities. To get a demon to obey you, you needed two things: the demon's full and exact name, and a physical way to make sure it did as it was told. So, in this case, the magical papyrus recipe book gave you the demon's name and the correct incantation, while the iron ring was the target of the magic that established a physical bond. It was intended that the ring be hidden in the ground in order to *prevent* something from happening. By inscribing and burying the ring, the owner could specify, for example, that they did not want a rival to be lucky in love.

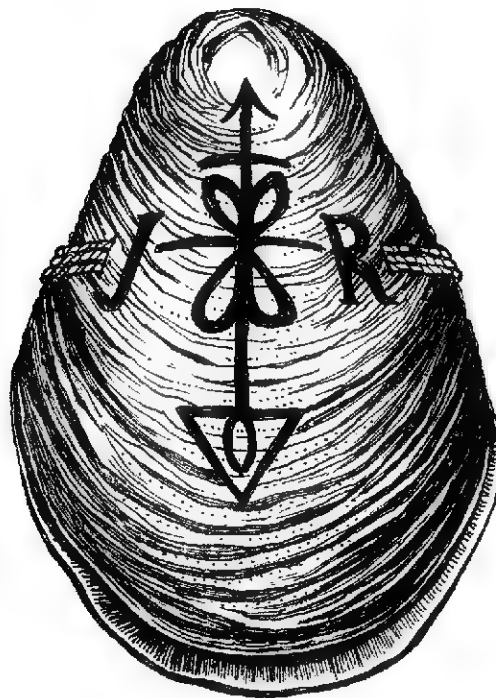
Summoning demons was a high-risk activity. Egyptian mythology in the 4th century AD saw a huge number of gods vying with each other. Greek and Roman gods were worshipped, Christianity was starting to spread across the Roman Empire and the Ancient Egyptian gods were still in the picture. The result was that people believed in many things simultaneously and practised magic alongside their religious observance. Summoning demons into the resulting mêlée was considered perfectly normal.



'Amortentia doesn't really create love, of course. It is impossible to manufacture or imitate love. No, this will simply cause a powerful infatuation or obsession. It is probably the most dangerous and powerful potion in this room — oh yes,' he said, nodding gravely at Malfoy and Nott, both of whom were smirking sceptically. 'When you have seen as much of life as I have, you will not underestimate the power of obsessive love...'

Professor Slughorn - *Harry Potter and the Half-Blood Prince*

It's much more fun to summon Cupid than to summon a demon. Love charms are the oldest charms of all. There are love rituals scratched on cuneiform tablets from four thousand years ago and there seem to be love charms in every place on the planet and in every moment in history.



Love charms have stretched well into the 20th century. One example found in the Netherlands is a charm between two people painted onto a beautiful oyster shell; oysters strongly symbolise love. One of the initials is 'J' and the other is 'R', with two hearts in between, connected at the tip. One of the initials is accompanied by the astrological symbol for Gemini, and the other one the symbol for Taurus. A red thread connects the two letters as well – a symbol of the couple's love. Let's hope the 'R' doesn't stand for Ron Weasley, given his history with magical love concoctions...

'Professor, I'm really sorry to disturb you,' said Harry as quietly as possible, while Ron stood on tiptoe, attempting to see past Slughorn into his room, 'but my friend Ron's swallowed a love potion by mistake. You couldn't make him an antidote, could you?'

Harry Potter and the Half-Blood Prince



PART 2: A COVEN OF WITCHES

Non-magic people (more commonly known as Muggles) were particularly afraid of magic in medieval times, but not very good at recognising it. On the rare occasion that they did catch a real witch or wizard, burning had no effect whatsoever. The witch or wizard would perform a basic Flame-Freezing Charm and then pretend to shriek with pain while enjoying a gentle, tickling sensation. Indeed, Wendelin the Weird enjoyed being burnt so much that she allowed herself to be caught no fewer than forty-seven times in various disguises.

A History of Magic by Bathilda Bagshot - Harry Potter and the Prisoner of Azkaban

Any reader of Harry Potter knows that witches should not be stigmatised for their magical abilities, unless they use them for wicked ends. But the attitude in history towards witchcraft has been overwhelmingly negative, and often used as a means of persecuting women in society. Accusations of witchcraft were particularly widespread in the 17th century.

Back in 1621, the three daughters of a famous English scholar called Edward Fairfax became ill and his youngest daughter, Anne, died. The two surviving sisters then accused some local women of practising witchcraft and causing Anne's death. The women were taken to trial at the

local assizes (old English county courts). Fairfax wrote a manuscript, setting out his case for the prosecution: *A Discourse of Witchcraft as it was Acted in the Family of Mr Edward Fairfax of Fuystone*.

Fairfax pursued his argument against the accused by describing the witchcraft performed against his daughter. He drafted the manuscript as a way of giving credence to his belief that local witches plotted against his daughter, ultimately killing her. He documented the accused women's behaviour in great detail.

Fairfax described cavorting with devils, big black dogs, people struck dumb and wax effigies. Often the devil appeared in the guise of a witch's familiar (accompanying demon) – a cat or sometimes a bird or something even stranger. The account was later published a century after it was written (the original has been lost, but it was copied and distributed among interested scholars), and the printed book had additional numbered illustrations to accompany Fairfax's text. The witches are depicted as old and hunched, carrying a stick alongside their familiars: birds, goats, a many-legged sort of fish-cat and the devil himself.

The illustrations in Fairfax's book established the image of the bent-over, haggard witch that endures to this day. In the 17th century and beyond, women were often disenfranchised and vulnerable within wider society, along with the disabled and mentally ill. They were easy targets and that's what we've seen in the iconography of witchcraft ever since: the witch with a walking stick is really a vulnerable old woman.

The women accused by Fairfax were tried twice, but, despite his best efforts, they were acquitted each time. His daughters eventually admitted that they had invented their dreams in which the witches were performing dangerous acts and trying to kill Anne. It was possibly no surprise that, in this male-dominated society, they had done so to get the attention of their father.

Regardless, Fairfax stood by his book as the truth of what had happened. The accused women's ordeal has been credited as one of the last gasps of the witchcraft trials that plagued England that century, and made infamous legends of historical figures such as the Witchfinder General, Matthew Hopkins. Hopkins had stalked the fenlands of England's East Anglia during the English Civil War in the mid-17th century, and took advantage of the upheaval to execute around 300 women between 1644 and 1646, charged with making covenants with the devil.

But perhaps the most infamous witch trials of all happened fifty years later across the Atlantic, in the village of Salem, Massachusetts...



In 1693, the year the Salem witch trials ended, a book was published called *The Wonders of the Invisible World: Being an Account of the Tryals of Several Witches, Lately Executed in New-England*, written by Cotton Mather.

Mather was a major influence in the frenzied witch hunt that broke out in February 1692, when two girls – nine-year-old Betty and eleven-year-old Abigail, daughter and niece of Salem's new reverend respectively – became ill and started to have fits. A doctor was called. His diagnosis was bewitchment. Two hundred people were accused. Nineteen were hanged, others died in prison and one man was pressed to death by rocks.

Mather was a pastor and a prolific writer, who graduated from Harvard when he was only fifteen years old. He was a highly educated man. He studied hybridisation in corn, lobbied for smallpox inoculation and wrote over four

hundred books and pamphlets. He even authored a children's book.

By 1692 he had already published writings on the dangers of witchcraft. He'd even taken a young woman, whose mother had been hanged as a witch, into his house, so he could closely observe how witchcraft manifested itself.

Mather was a respected member of the Massachusetts Bay Colony where Salem was situated. The area was populated by Puritans – a devoutly religious group that had emigrated from England. They wished to 'purify' the Church of England of its Catholic practices, and the New World they found themselves in was a harsh one. With smallpox spreading and the Native American peoples hostile towards them, there was a struggle to maintain their pious, ordered religious community.

Mather represents a period of time in New England that was rife with hysteria and accusation. There were many natural phenomena occurring that could not be explained: bad harvests, freak storms, flooding and drought all left people stumped as to their cause. As a devoutly Puritan minister with authority and influence in the community, whose father had also been a minister, Mather thought it was his responsibility to find a reason for these various disasters.

Unfortunately, that meant accusing a number of young women who ranked much lower than him in the strict social hierarchy of being in league with Satan. The reasons why family, neighbours and acquaintances were accused have been debated many times over the centuries. Fear and paranoia played their part, but so did financial exploitation. In these close-knit communities, many people were related to each other and an accusation of witchcraft was a convenient way to bypass a line of inheritance. The misogyny of the period ensured a son never accused a father. Accusations of witchcraft were a way for societies to control what they viewed as 'disruptive' female behaviour.

What often started as an opportunistic way of getting a woman out of the way became a cultural contagion with little or no rational explanation.

We now look back at the events in Salem with horror at the terror and pain of the victims, anger at the arrogance of the prosecutors and incredulity at the superstition from another age. But even while the trials were happening, there was controversy – *The Wonders of the Invisible World* reflects this. Even as he voiced great discomfort with the court's admission of spectral evidence (testimony from dreams, ghosts and visions), Mather defended the court's verdicts (as long as they were based on the testimony of human witnesses, however disingenuous).

Mather's determination to keep the supernatural out of the courtroom can't excuse his hypocrisy in defending the witch trials. They were already coming to be seen as a blemish on American society. His explanation of how it was legitimate to execute the witches shows he already understood that history would not look kindly on his actions and the tragedy that he contributed to. And it certainly hasn't.



Another tragic example of the hysteria surrounding witchcraft is the case of the Pendle witches and the Lancashire witch trials of 1612 – probably the most famous witch trials in English history. Nineteen people were accused of practising witchcraft and the majority of them were hanged.

But *The History of the Lancashire Witches*, published in 1825, over two hundred years after the trials, painted a very

different picture of witches to those of Edward Fairfax and Cotton Mather.

The witches this book portrayed looked like strange bony birds with spindly legs, large beaky noses and angular cloaks that looked like wings. The book actually sought to liberate these figures from the myth of being evil, dangerous creatures and showed them in quite a jolly new light: fun-loving people that liked to ride about on broomsticks!

As every school-age wizard knows, the fact that we fly on broomsticks is probably our worst-kept secret. No Muggle illustration of a witch is complete without a broom [. . .] broomsticks and magic are inextricably linked in the Muggle mind.

Quidditch Through the Ages

The witches were also notable in this book for riding their brooms the 'wrong' way round, with the bristles facing forward. It's only recently that we've seen the bristles facing backwards in illustrations of witches riding broomsticks. The rider looking over the bristles of this domestic item suggested an inversion of power, a world turned upside down, women all-powerful over men. Depicted in this way, they symbolised everything that men then feared.



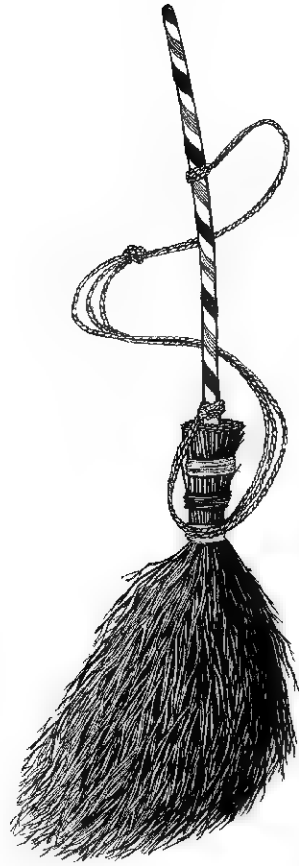
Several boys about Harry's age had their noses pressed against a window with broomsticks in it. 'Look,' Harry heard one of them say, 'the new Nimbus Two Thousand – fastest ever –'

Harry Potter and the Philosopher's Stone

Few charmed objects are more closely associated with the Western image of the witch than the broomstick. In 20th-century Devon, Southwest England, during a full moon, a local woman called Olga Hunt took a colourful broomstick and leapt around one of Dartmoor National Park's most famous landmarks, Haytor Rocks. Many a camper was alarmed, while courting couples almost had heart attacks.

It's hard to imagine what Hunt thought she was up to. Did she really think she was flying? Was it about getting kicks by frightening people? Or in her mind was she engaged in something else?

Olga's broom was not a typical collection of twigs, nor a fancy Nimbus Two Thousand. It drew from a broader tradition – with its colourful appearance it resembled a maypole. It linked back to ancient practices with roots in pagan fertility rites that fed the superstitions of the 16th- and 17th-century witch hysteria in Europe. It obviously has phallic symbolism and, like the broomstick portrayed in *The History of the Lancashire Witches*, it was transformed from a harmless domestic object into something socially disruptive.



There's no getting away from the fact that the image of the witch on her broomstick has often been reproduced and reworked by men. But Olga Hunt reclaimed it in the 20th century for her own mischievous, subversive ends. Though the exact reasons for her jumping among the rocks remain obscure, it certainly looked a lot of fun.



PART 3: THE SORTING HAT AND INVISIBILITY CLOAK

The Sorting Hat is one of Hogwarts' most magical charmed objects. It is a thousand years old and was originally enchanted by the four founders of Hogwarts. Don't be deceived by its battered and frayed appearance. After all, a true Gryffindor can even pull a sword from it.

Early on in J.K. Rowling's five years planning the Harry Potter stories, she decided that there were to be four school houses – Gryffindor, Ravenclaw, Hufflepuff and Slytherin – each with their own distinct characteristics. However, working out exactly how the students would be sorted took a little longer.

Rowling spent a lot of time brainstorming, compiling notes, complete with doodles and scribbles in the margin, which help us understand how she finally came to decide on how the Sorting Hat, and its performance of a key piece of magical school administration, worked.

When she finally cracked it, Rowling noted down the logic: 'Finally I wrote a list of the ways in which people can be chosen: eeny meeny miny moe, short straws, chosen by team captains, names out of a hat – names out of a talking hat – putting on a hat – the Sorting Hat.'

At the bottom of another page of her notes is an illustration of a hat with a mouth, which talks and sings and looks remarkably like the Sorting Hat as it is represented in the Harry Potter films.

(Ghost) Court

Hall

Arbitrary List

Gateway

Statues

Selection Committee MN
(Prefects, Hs & H x)



Question or Riddle M



Forget Say.
Just put on Hat.

Unimadone
Forest
Cudditch Trials
Corridor

Does Scar
have to happen
at feast

Shape

Unimadone & Shape
Peers

On I ~~not~~ ^{look too} ~~be~~ ^{not} pretty
But don't judge on what you see
I'll eat myself if you can find
A smother wad than me



John

Notes on sorting the students by J.K. Rowling

You can keep your boulders black
Your top hats black and tall
For I'm the fogwater soaking hat
And I can cap men all

There's nothing hidden in your heart

So try me on and I will tell ~~to~~ you

Her night belongs in Gryffindor

we dwell no longer at heart

~~Dr. Hattie~~ ~~if you have not~~

Set Gryffindors apart

Where ~~old~~ are ~~fair~~ and loyal

And unafraid of toil

~~The house for~~

I am in Howe and enclaves found
are ~~very~~ ^{at quick} ~~interesting~~ ^{with} are ~~good~~
e ~~at quick~~ ^{at quick} and most learned minds

The Sorting Hat Song by J.K. Rowling

The Sorting Hat would be nothing without the Sorting Hat Song, which is sung at the start of every academic year as first-year students are sorted into their houses. J.K. Rowling's working draft contained some crossings-out and additional edits, as she worked out the rhymes, rhythms and what to include, but most of its lines survived in the final published version of *Philosopher's Stone*.

The Sorting Ceremony begins when the hat sings a song explaining the qualities favoured by each of the houses. A new song is composed each year. It's not actually until his fourth year at Hogwarts that Harry attends another Sorting Ceremony other than his own.



Harry picked the shining, silvery cloth off the floor. It was strange to the touch, like water woven into material.

'It's an Invisibility Cloak,' said Ron, a look of awe on his face. 'I'm sure it is — try it on.'

Harry Potter and the Philosopher's Stone

'Now you see me, now you don't.' From ancient myths to modern movies, people have harnessed the pleasures and possibilities of invisibility. For those who won't inherit an Invisibility Cloak, other methods of disappearing must be found instead. *The Book of King Solomon called the Key of Knowledge* was an English manuscript from the 17th

century. It featured an invisibility spell under the heading 'How experiments to be invisible must be prepared'.

The method proposed existed in several versions because the book was widely shared, copied and recopied by students of magic. It was a manuscript treatise full of various spells. It alternated between black and red ink. Titles and spells themselves were written out in red, while the rest of the description on how to perform the ritual was written in black.

The manuscript was spuriously attributed to King Solomon – the famously wise and wealthy king who is supposed to have lived nearly three thousand years ago. But the text – and the invisibility spell – probably date from the Renaissance (1300–1600).

The manuscript owned by the British Library once belonged to a 16th-century Elizabethan poet and lawyer, an Englishman called Gabriel Harvey, who was a very serious scholar and a contemporary of Shakespeare's. The manuscript was full of Harvey's own annotations and highlights, so it was clearly not an ornament but a working magical manuscript that its owner used and studied.

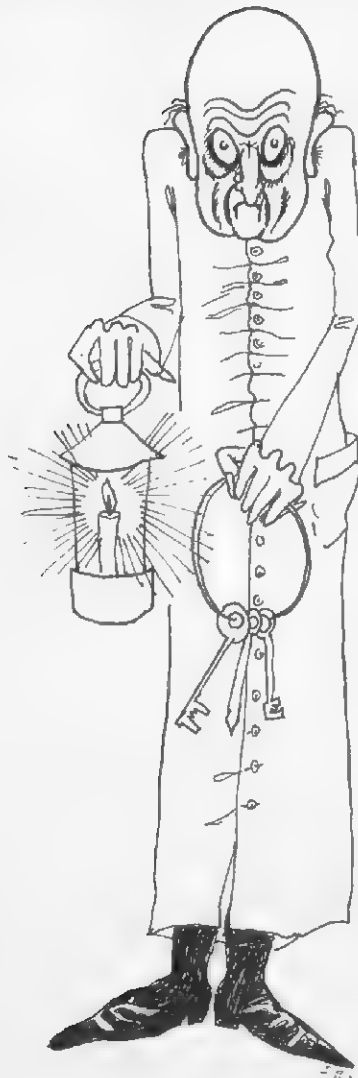
Not only that, it wasn't printed; it was copied out by hand. *The Key of Knowledge* wasn't properly published until many years later. The spells or charms were described in the book as 'experiments', which followed a set process and could be tested, and then repeated, by yourself or others. So the select few magic scholars who had access to these spells were trying to replicate charms in the same way that today's scientists might try to replicate controversial experiments to prove – or disprove – their worth. If you read the spell the right way you would become invisible (or maybe not!).

The last line, which was a supplication to make the speaker invisible, seemed to be an appeal to a higher power (presumably God) in the hope of influencing the spell. It suggested that replicating the process was important, but

somehow so was the character and virtue of the practitioner – suggesting that the ultimate ability to do anything was granted by God. The charm’s effectiveness could never be technically disproved or discounted and so it endured through time. If it failed to have an effect, it was not because the words didn’t make you invisible; it was because you’re weren’t worthy.



Early on in the creation of the world of Harry Potter, J.K. Rowling drew a picture of Argus Filch. In her vision, he had jowly cheeks, bags under his beady eyes and a very wrinkled forehead. His bald head protruded in front of his bony shoulders, which reached up to his ears. He looked like a haggard vulture. In one hand he held the keys to Hogwarts on a large key ring. In the other he held a lantern for patrolling the corridors at night.



Sketch of Argus Filch by J.K. Rowling (1990)

Filch often came close to discovering Harry on his night-time adventures around the school. Harry only escaped detection thanks to his Invisibility Cloak, which once belonged to his father, James Potter.

Light or no light, we know Filch could never catch Harry while he was hiding underneath his Invisibility Cloak, which is ironic given the root of Filch's name. 'Argus' was a giant of classical mythology who had a hundred eyes. He was known

as the 'all-seeing one', a description that can't really be applied to poor old Filch, who spent a lot of his time hopelessly chasing Harry and his friends around Hogwarts trying to find them.

'Ah — your father happened to leave it in my possession, and I thought you might like it.'
Dumbledore's eyes twinkled. 'Useful things... your father used it mainly for sneaking off to the kitchens to steal food when he was here.'

Harry Potter and the Philosopher's Stone

Harry Potter's Invisibility Cloak was the greatest the world has ever seen; the cloak that once belonged to Death himself. It was especially precious to Harry as it was handed down to him by his dad.

Without the cloak, Harry wouldn't have been able to eavesdrop on vital conversations, sneak out of Hogwarts for essential missions or peek at the terrifying dragons before the Triwizard Tournament.

An Invisibility Cloak is a rare, precious and mysterious object. You must be desperate to see it...

Here it is:

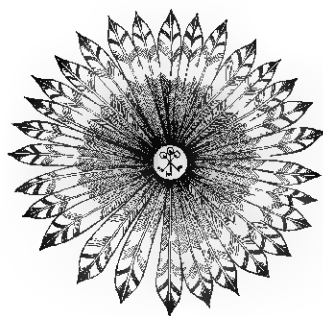
Someone wearing an Invisibility Cloak

That is a real, genuine Invisibility Cloak. Bet you can't believe your eyes!



Charms is a subject that illustrates more than most how magic has been used and abused over the years. There were some delightful charms, from turning yourself into a lion, to making yourself invisible – their effectiveness has never been completely disproved! But this form of magic has a darker side, too. Over the centuries, magic and witchcraft have been used to mask the persecution of vulnerable people, under the pretext that they were performing wicked and unholy magical practices. The image of the haggard witch was so effective that it still resonates today. You can trace the birth of science and the continuing respect for religion in the rigorous practice of charms. Charms have been used to ward off disease and even to make people fall in love.

In the wizarding world of Harry Potter, a hat can decide your school house *and* sing for you, and one tap of a brick can reveal a hidden street full of wizarding delights. All in all, charms are rather... beguiling.



DEFENCE AGAINST THE DARK ARTS

Arguably the most important lessons Harry learned inside a classroom were during Defence Against the Dark Arts. Among other things, he learned to summon a Patronus, to deflect a hex and how to resist the Imperius Curse. These were life-saving skills and techniques. In the history of magic, there are plenty of curious additions: why a cucumber might be a good thing to have with you while swimming in Japan, and how to answer a riddle from a sphinx.

Defence Against the Dark Arts was famous for its revolving door of professors, who themselves weren't unafflicted by Dark Magic, one way or another.



PART 1: SNAKES, SNAKES, SNAKES

All he knew was that his legs were carrying him forward as though he was on castors and that he had shouted stupidly at the snake, 'Leave him!' And miraculously – inexplicably – the snake slumped to the floor, docile as a thick black garden hose, its eyes now on Harry.

Harry Potter and the Chamber of Secrets

Snakes slither through the wizarding world from start to finish. Snape, who finally achieves his ambition to land the jinxed job of Defence Against the Dark Arts teacher, is a Slytherin whose house emblem is a snake. Lord Voldemort has a special bond with his gigantic, terrifying snake Nagini. And Harry discovers he can mysteriously speak the language of snakes: Parseltongue.

Snakes have captured the imagination from the moment one slithered down a tree and tempted Eve with an apple. They have been worshipped and feared, sometimes defenders against the dark arts and sometimes instruments of it.

'Dinner, Nagini,' said Voldemort softly, and the great snake swayed and slithered from his shoulders onto the polished wood.

Harry Potter and the Deathly Hallows

Snakes are mysterious and wonderful. They slither along the ground without limbs and regenerate whenever they shed their skin. They can be horrifying as well, opening their mouths so wide that they can swallow their prey whole. They have symbolised poison and they have represented medicine. In folklore and mythology, they represent the duality between good and evil, light and darkness.

One bestiary (a medieval volume that describes various animals) from 13th-century England depicts an *emorrosis* alongside a snake charmer – an asp so-called because its bite caused haemorrhages so horrific that the victim sweated out their own blood until they died. The asp could only be overcome if it was sung to sleep in its cave. Once asleep, the conjurer could remove the jewel which sat on top of the snake's head and render it powerless.



'Yes, thirteen and a half inches. Yew. Curious indeed how these things happen. The wand chooses the wizard, remember... I think we must expect great things from you, Mr Potter... After all, He Who Must Not Be Named did great things – terrible, yes, but great.'

Garrick Ollivander - *Harry Potter and the Philosopher's Stone*

An object that was historically known to incorporate the features of a snake, so that it would become more powerful in the way it channelled magic, was the wand. Wands are central to the world of Harry Potter. There are complex rules about how a wand is created and chosen, and how it channels magic. You might think this complexity emerges from J.K. Rowling's knowledge of historical magical folklore, but in the case of wands, she invented it all.



Wands can be made of different types of wood, just like those at Ollivander's, which gives them different characteristics. They then might be enhanced with other materials: feathers, precious stones, metals and even

unicorn hair – if you can get hold of it – to enhance their abilities.

'Every Ollivander wand has a core of a powerful magical substance, Mr Potter. We use unicorn hairs, phoenix tail feathers and the heartstrings of dragons. No two Ollivander wands are the same, just as no two unicorns, dragons or phoenixes are quite the same. And of course, you will never get such good results with another wizard's wand.'

Garrick Ollivander - *Harry Potter and the Philosopher's Stone*

Snakes are significant in the magical folklore of many cultures. Representations of them are found in wands as well as grander objects such as modern witches' staffs, made of materials like black bog oak – oak that has been sitting in a bog for hundreds, if not thousands, of years. The shedding of the snake's skin represents rebirth, renewal and regeneration, while the coils of the snake portray the dualism in magic: good and bad, destruction and protection, life and death.



Back in the 18th century, Dutch apothecary Albertus Seba had a renowned collection of curiosities, which he kept in his house in Amsterdam – a city that was then one of the great maritime centres in Europe. Seba provided the port's ships with medicine, and in return they brought him exotic finds

from all over the world. If you went to Seba's place, you'd see plants, birds, insects, shells, crocodiles, butterflies, even a hydra and a dragon!

Seba actually created two collections. The first he sold to the Russian Tsar, Peter the Great, for a huge amount of money. The second, created over a decade, was much larger. In 1731, he commissioned artists to draw every single item in precise detail. It was such a massive project that the book wasn't finished until 30 years after his death, and its catchy title was *Accurate description of the very rich thesaurus of the principal and rarest natural objects*.

Though many of the specimens he collected were used for medical research, a lot of the writings that Seba created were not very scientifically accurate. He took a keen interest in the potential of snakes for use in life-saving cures, however – his collection contained many serpents, such as a reticulated python, native to Southeast Asia.



Voldemort looked away from Harry, and began examining his own body. His hands were like large, pale spiders; his long white fingers caressed his own chest, his arms, his face; the red eyes, whose pupils were slits, like a cat's, gleamed still more brightly through the darkness. He held up his hands, and flexed the fingers, his expression rapt and exultant. He took not the slightest notice of Wormtail, who lay twitching and bleeding on the ground, nor of the great snake, which had slithered back into sight, and was circling Harry again, hissing.

Harry Potter and the Goblet of Fire

Voldemort has a physical association with snakes, not least Nagini. But he didn't always look the way he is described in the Harry Potter stories. J.K. Rowling rewrote the first chapter of *Harry Potter and the Philosopher's Stone* thirty times or more as a way of telling herself the story before she came up with the version that was published. An early draft featured a character called 'Fudge' – he's not the Cornelius Fudge we know but a Muggle minister.

"Your kind?"

"Yeah... our kind. We're the ones who've bin disappearin'. We're all in hidin' now." But I can't tell yeh much abou' us. Can't 'ave Muggles knowin' our business. But this is gettin' outta hand, an' all you Muggles are gettin' involved - them on the train, fer instance - they shouldn'ta bin hurt like that. That's why Dumbledore sent me. Says it's your business too, now."

"You've come to tell me why all these houses are disappearing?" Fudge said, "And why all these people are being killed?"

"Ah, well now, we're not sure they 'ave bin killed," said the giant. "He's jus' taken them. Needs 'em, see. 'E's picked on the best. Dedalus Diggle, Elsie Bones, Angus an' Elspeth McKinnon ... yeah, 'e wants 'em on 'is side."

"You're talking about this little red-eyed -?"

"Shh!" hissed the giant. "Not so loud! 'E could be 'ere now, fer all we know!"

Fudge ^{shuddered} ~~shivered~~ and looked wildly around them. "C - could he?"

"S'alright, I don' reckon I was followed," said the giant in a gravelly whisper.

"But who is this person? What is he? One of - um - your kind?"

The giant snorted.

"Was once, I s'pose," he said. "But I don' think 'e's anything yeh could put a name to any more. 'E's not a 'uman. ~~'E's not an animal, -- 'E's not properly-~~ Wish 'e was. 'E could be killed if 'e was still 'uman enough."

"He can't be killed?" whispered Fudge in terror.

"Well, we don' think so. But Dumbledore's workin' on it. 'E's gotta be stopped, see?"

"Well, yes of course," said Fudge. "We can't have this sort of thing going on..."

"This is nothin'," said the giant, "'E's just gettin' started. Once 'e's got the power, once 'e's got the followers, no-one'll be safe. Not even Muggles. I 'eard 'e'll keep yeh alive, though. Fer slaves."

Fudge's eyes bulged with terror.

~~"But who is this --- this person?"~~

"This Bumblebore - Dunderbore -"

"Albus Dumbledore," said the the giant severely.

"Yes, yes, him - you say he has a plan?"

"Oh, yeah. So it's not hopeless yet. Reckon Dumbledore's the only one He's still afraid of. But 'e needs your 'elp. I'm 'ere teh ask yeh."

An early draft of *Harry Potter and the Philosopher's Stone*

In this early draft, Hagrid arrives in Fudge's office and starts telling him about the awful things happening in the magical world – mainly concerning attacks and disappearances – without mentioning You-Know-Who by name. Hagrid warns the Muggle minister not to give out people's addresses and locations to the strange 'little red-eyed' man wandering around. The red eyes remained as Voldemort morphed into his fully-formed incarnation in the published novels. Later on, it transpires that Mr Dursley works in Fudge's office and is reluctant to take baby Harry home, lest he endangers his own son, 'Didsbury'. The scene is reminiscent of Cornelius Fudge visiting the Muggle Prime Minister in the first chapter of *Harry Potter and the Half-Blood Prince*. As J.K. Rowling has said, 'I often cut ideas and put them into later books. Never waste a good scene!'



Of the many fearsome beasts and monsters that roam our land, there is none more curious or more deadly than the Basilisk, known also as the King of Serpents. This snake, which may reach gigantic size and live many hundreds of years, is born from a chicken's egg, hatched beneath a toad. Its methods of killing are most wondrous, for aside from its deadly and venomous fangs, the Basilisk has a murderous stare, and all who are fixed with the beam of its eye shall suffer instant death.

Page torn from a library book in *Harry Potter and the Chamber of Secrets*

The basilisk is a giant serpent that can kill with a single glance. The most terrifying basilisk lurked in the Chamber of Secrets beneath Hogwarts. Salazar Slytherin's monster was at the centre of the climax of *Harry Potter and the Chamber of Secrets*, coiling past Harry, so huge that it was hard to tell where its body began or ended.

Harry was on his feet, ready. The Basilisk's head was falling, its body coiling around, hitting pillars as it twisted to face him. He could see the vast, bloody eye sockets, see the mouth stretching wide, wide enough to swallow him whole, lined with fangs long as his sword, thin, glittering, venomous...

Harry Potter and the Chamber of Secrets

As it happens, a basilisk appears in an Italian manuscript from 1595 called *Historia animalium*. It contains 245 unique illustrations by someone known as Idonius. Some of the beasts are real, some mythical, such as a jaculus (a flying serpent) or an onocentaur (half man, half donkey). The descriptions of the creatures far pre-date that book, though. Even in the 16th century, one of the main sources on animals was Pliny the Elder, a Roman naturalist who lived in the 1st century AD, and also Claudius Aelianus, a Roman author and teacher who died in 235 AD. According to Aelianus, the basilisk was only twelve inches long, but its touch, breath and stare were all deadly.

The existence of creatures like the basilisk became something of a joke over time, because as the stories of a creature that could kill you with a look circulated, they got more and more elaborate. In effect, people just *liked* to believe in fantastic beasts such as these. And, historically,

you didn't need the sword of Gryffindor to defeat a basilisk – a weasel would do!

A weasel in your pocket was said to be handy because its scent was believed to be fatal to the basilisk. Pliny and other Ancient Greek and Roman writers would have advised you to drop a weasel down the basilisk's burrow and when the weasel encountered the basilisk they would fight to the death. Unfortunately they would both be killed – but at least it would solve the basilisk problem. If only Harry had done his homework properly and kept a weasel on him. He had a couple of Weasleys instead, and it all turned out fine...

How about a basilisk that was part serpent, part chicken? Jacobus Salgado, a Protestant refugee from Spain who was on the run from the Spanish Inquisition in around 1680, had made it to England when he was given a stuffed basilisk from a Dutch sea captain returning from Ethiopia. Short of money, he sold tickets for people to see the curiosity on display and made a pamphlet to sell to people who came to see the amazing beast, which described the basilisk as yellow with a crown-like crest, a serpent's tail and the body of a cockerel. He claimed that in the time of Alexander the Great there was one of them lying hidden in a wall that killed a great troop of his soldiers just by 'the poisonous glances of his eyes upon them'. The illustration on the pamphlet's title page shows two men holding their hands up in front of their faces, desperately trying to shield themselves from the creature's deadly stare. One unfortunate man has already fallen down dead after catching its eye. There is no mention of needing a weasel to kill it.



PART 2: CASTING OUT THE EVIL EYE AND DRAWING A MAGIC CIRCLE

Unfortunately, you needed a specially signed note from one of the teachers to look in any of the restricted books and he knew he'd never get one. These were the books containing powerful Dark Magic never taught at Hogwarts and only read by older students studying advanced Defence Against the Dark Arts.

Harry Potter and the Philosopher's Stone

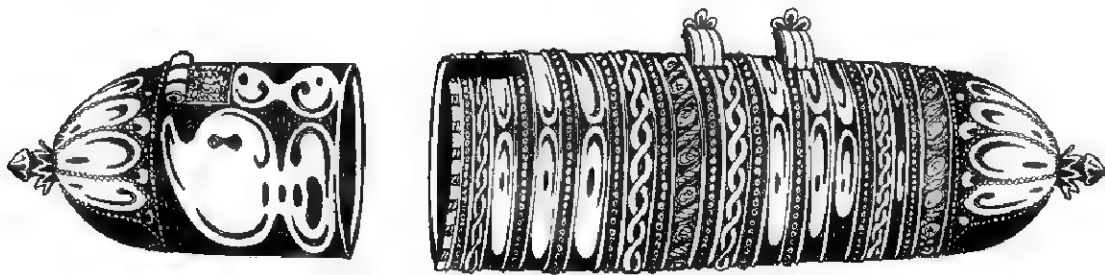
The main thing that paying attention during Defence Against the Dark Arts can offer is protection. In history, defences against dark magic have included amulets, talismans, charms and incantations, just like the kind collected in a rare Ethiopian magical recipe book from 1750.

This kind of book often belonged to a Däbtära, a highly educated religious figure who performed white magic. The talismans contained in such a book were abstract drawings that represented the Ethiopian tradition of magic, not as a figurative icon for worship, but to protect the client – because a demon would see his or her appearance in the talisman and thus be scared away.

These weren't 'how-to' books, because the Däbtära were already familiar with the talismans and would never show the books to the client. Typically a person would consult a

practitioner, just as a patient today would consult a doctor, and be prescribed herbal medicine and an incantation to invoke the talisman to cure that person.

Ethiopian magic came under attack in the 15th century from the Christian King, Zara Yaqob, who wanted to stamp out existing magical traditions and get rid of what he saw as superstitions that kept people ignorant of Christianity. In doing so, he showed people that being a Christian was a more effective protection than carrying a talisman – all part of a crusade against the old traditions of folklore.



To this day, Ethiopia remains a Christian country, but despite Yaqob's efforts, Ethiopians still consult Däbtäras. Talismans were also contained in parchment scrolls, which could be held within beautiful casings, sometimes made of leather or silver. Otherwise known as *Ketab*, these amulet scrolls have been worn by people in the easternmost part of Africa for thousands of years. They are still worn in the northern highlands of Ethiopia, where amulets are believed to bring health, to protect babies and ward off the evil eye. There are often eyes looking everywhere and the predominant colours are black and red, because demons are not supposed to see colours other than black and red.

Some scrolls can measure up to two metres, and can be stitched into a leather pouch, unable to be opened again lest the talisman doesn't work. These acted as protection prayers ending with the name of the client, and were not used expressly because people were cursing the client; they were intended for when things went wrong in their own

lives. Illness was often attributed to demons, particularly epilepsy, which was known as the illness caused by a demon. Wearing an amulet scroll was a very literal way of defending yourself from dark magic.



'If we're staying, we should put some protective enchantments around the place,' she replied, and raising her wand, she began to walk in a wide circle around Harry and Ron, murmuring incantations as she went.

Harry Potter and the Deathly Hallows

The painting *The Magic Circle* by the 19th-century British artist John William Waterhouse depicts an enchantress drawing a protective circle around herself with a long, thin wand, outside of which is a strange, barren landscape populated by foreboding creatures. The woman is beautiful, quite the opposite of the haggard and ugly cliché of a witch – a representation often used as a means to humiliate and control women who were perceived as unruly.

Waterhouse was associated with the Pre-Raphaelites – an artistic movement from the mid-19th century onwards, which harked back to late-medieval art. He often painted mythological, historical and literary subjects, frequently portraying female characters. *The Magic Circle*, first shown in 1886, was one of his most popular. It was a near-reverential portrait of a type of woman who was often treated with negativity, if not outright misogyny. The

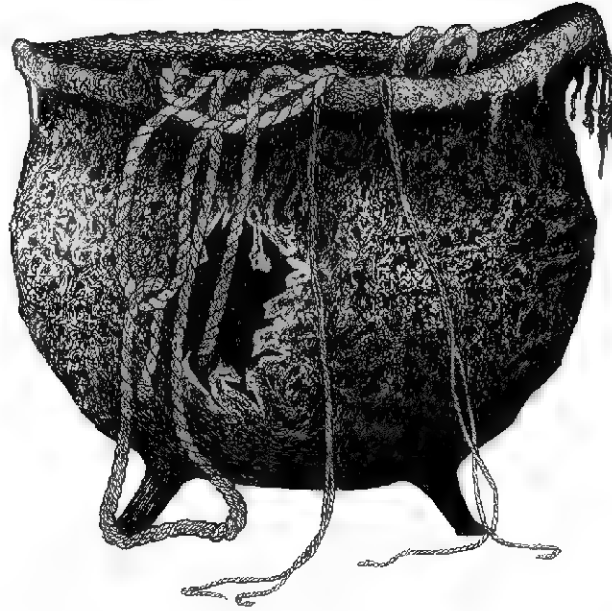
subjects of Waterhouse's paintings are dynamic, engaged and engaging. You might even call him a feminist...

Harry saw little disturbances in the surrounding air: it was as if Hermione had cast a heat haze upon their clearing.

Harry Potter and the Deathly Hallows



That doesn't mean that witches weren't capable of mischief. On a beach in Cornwall, England, in the 1950s, three witches attempted to conjure up a spirit without a thought for health and safety. The cauldron they were using exploded and the witches fled in terror. It blasted into the air and was recovered where it landed on the rocks. The cauldron is now battered, lopsided and covered in a congealed tar-like substance, and the ropes it hung from are permanently glued to its charred sides. The basic function of cauldrons was once as cooking pots, but by the 1950s they were exclusively used for the brewing of potions.



These witches weren't the only ones to struggle with cauldrons, though – just ask Neville Longbottom.

Neville had somehow managed to melt Seamus's cauldron into a twisted blob and their potion was seeping across the stone floor, burning holes in people's shoes. Within seconds, the whole class were standing on their stools while Neville, who had been drenched in the potion when the cauldron collapsed, moaned in pain as angry red boils sprang up all over his arms and legs.

'Idiot boy!' snarled Snape, clearing the spilled potion away with one wave of his wand.

Harry Potter and the Philosopher's Stone



PART 3: MYTHICAL MONSTERS

For Harry, Defence Against the Dark Arts was the most important subject at Hogwarts. It kept him alive and helped him greatly in his crusade against the Death Eaters and Dark Magic. Years before his arrival at Hogwarts, when he was just a baby, he faced its greatest practitioner, Lord Voldemort – and lived!

‘It’s – it’s true?’ faltered Professor McGonagall. ‘After all he’s done... all the people he’s killed... he couldn’t kill a little boy? It’s just astounding... of all the things to stop him... but how in the name of heaven did Harry survive?’

‘We can only guess,’ said Dumbledore. ‘We may never know.’

Harry Potter and the Philosopher’s Stone

Harry lived, but his parents died in the confrontation. As she drafted *Harry Potter and the Philosopher’s Stone*, J.K. Rowling drew her own vision of the moment when we first meet Harry Potter, as a baby, fresh from his encounter with the Dark Lord, being delivered to Number Four, Privet Drive.



Drawing of Harry Potter, Dumbledore, McGonagall and Hagrid by J.K. Rowling

The sketch depicts a dark night with only the moon and stars to light the scene, after Dumbledore has extinguished all the streetlights with his Deluminator. Hagrid stoops to show the baby to Dumbledore and McGonagall. All we can see of Harry is the crown of his head wrapped in a white blanket, shining as brightly as the moon up above. The drawing is full of atmosphere and emotion, as it captures this pivotal moment in the stories: the very beginning of Harry's story.

It's tied to an exact moment – a paragraph where the three of them are standing looking at Harry, and McGonagall has just expressed concern about him being left with the Dursleys: 'These people will never understand him! He'll be famous – a legend – I wouldn't be surprised if today was known as Harry Potter Day in the future – there will be books written about Harry – every child in our world will know his name!'

Of course, Dumbledore knew how Harry survived. He knew that the greatest defence against Dark Magic was love.

One small hand closed on the letter beside him and he slept on, not knowing he was special, not knowing he was famous, not knowing he would be woken in a few hours' time by Mrs Dursley's scream as she opened the front door to put out the milk bottles, nor that he would spend the next few weeks being prodded and pinched by his cousin Dudley... He couldn't know that at this very moment, people meeting in secret all over the country were holding up their glasses and saying in hushed voices: 'To Harry Potter – the boy who lived!'

Harry Potter and the Philosopher's Stone



From Red Caps they moved on to Kappas, creepy water-dwellers that looked like scaly monkeys, with webbed hands itching to strangle unwitting waders in their ponds.

Harry Potter and the Prisoner of Azkaban

If you happen to come upon a peaceful river in Japan: beware! A demon, or kappa, may be ready to drag you into the watery depths. The kappa takes its name from the Japanese for 'river' (which is *kawa*) and 'child' (which is *wappa*) – both conjoined to make 'kappa'.

J.K. Rowling based her description of kappas on existing Japanese folklore; they look a bit like monkeys, but with fish scales instead of fur, and with webbed hands and feet (for ease of travel through water). Some say they have fangs, others that they have a beak. There are differences in opinion about their character, too. Some stories see kappas as innocent but mischievous creatures. Others tell of demons that kidnap children, eat human flesh and drown unsuspecting victims. But what everyone agrees on is that kappas have a saucer-shaped space in the top of their heads filled with water – and they love cucumbers.

In 1855, Akamatsu Sotan, doctor and local historian, published *Tonegawa Zushi*, which is a history of the Tone River in the Kanto region of Japan. The book explored the folklore and traditions of the people who lived along the river and included an illustration of a kappa: it is shown in black and white, with a bowl in the middle of its head and

wild hair that looks like a chimney sweep's brush. And, according to Sotan, kappas would move along the Tone River every year, causing chaos and havoc wherever they went.



Kappas were also depicted as *netsuke* – a small decorative clasp used on Japanese robes. Both decorative and protective, it was probably a bit of fun as well: having a kappa on your side could prove useful.

There are ways to defend yourself against kappas. You need to remember that they're dangerous but also incredibly polite, and that the bowl in their head is full of water, which they need in order to survive. If you ever

encounter one and it looks like it wants to kidnap you and drag you away to its watery lair... bow to it! It will bow back in obedience, the water will spill out and it will die.

Should you ever want to bathe in a Japanese river, people believe to this day that kappas can be placated by writing your name, or that of your family, onto cucumbers and tossing them into the water. The cucumber is the kappa's favourite meal and should provide a necessary distraction for you to enjoy your swim in peace!



Then, as he strode down a long, straight path, he saw movement once again, and his beam of wand-light hit an extraordinary creature, one which he had only seen in picture form, in his Monster Book of Monsters.
It was a sphinx.

Harry Potter and the Goblet of Fire

The world's most famous sphinx lives in Egypt, carved out of solid rock around 4,500 years ago. It has the head of a man and the body of a lion. But sphinxes aren't just Egyptian: in Greek mythology, a sphinx has the body of a lion and the head of a woman – plus the wings of a bird. The sphinx is legendarily treacherous and murderous. Some think the word 'sphinx' has its roots in the Greek for 'to strangle' – which is what Greek sphinxes did to their victims.

Egyptian sphinxes were apparently much friendlier – though they still possessed ferocious strength. In both traditions, however, they're found as guardians in front of

temples, where they ask riddles of those who approach. In *The Historie of Foure-Footed Beasts*, published in 1607 by an English vicar called Edward Topsell, a sphinx appears alongside more common (and real) animals like rabbits, cats and even a version of German artist Albrecht Dürer's rhinoceros.

Topsell admitted that he cribbed a lot of the information from an earlier German work, *Historia animalium*. But *The Historie of Foure-Footed Beasts* is important, as it's the first book published in the English language explaining the animal kingdom.

In it, we're told that toads have a 'toadstone' in their heads that will protect people from poison; lemmings graze in the clouds; elephants worship the sun and the moon, and become pregnant by chewing on mandrake; apes are terrified of snails and weasels give birth through their ears.

Topsell describes the sphinx as having the face of a woman, with the bottom half of the body being apelike and covered in hair, not much like a lion at all. It has a 'fierce but tameable nature' and can store food in its cheeks until it's ready to eat, like a guinea pig. Its voice is that of a man: 'sounding as if one did speak hastily with indignation or sorrow'.



Topsell describes the Riddle of the Sphinx as it appeared in Greek mythology from the story of Oedipus. That riddle asked: what is the creature that walks first on four legs, then on two legs and lastly on three? The answer is man – you start off crawling as a baby, then you walk, then you walk with a stick. It's hard to tell whether Topsell believed these creatures really existed or not. He certainly liked to write about them as if they did.

Then she spoke, in a deep, hoarse voice. 'You are very near your goal. The quickest way is past me.'

'So... so will you move, please?' said Harry, knowing what the answer was going to be.

'No,' she said, continuing to pace. 'Not unless you can answer my riddle. Answer on your first guess – I let you pass. Answer wrongly – I attack. Remain silent – I will let you walk away from me, unscathed.'

Harry Potter and the Goblet of Fire



Every year around a million people head to Times Square in New York City for New Year's Eve celebrations. At midnight, a huge illuminated ball drops from a specially designed flagpole on top of 1 Times Square, a building famous for its dazzling advertising displays.

But if you go behind the advertising hoardings, the complex electrics for the LED lighting and the tangle of internet wires, you'll find an almost deserted building.

This was once the headquarters of the *New York Times* and it's the building that gives Times Square its name. The *New York Times* located their office there in 1905 and the owner, Adolph Ochs, had his office right at the top: an observatory – guarded by eight gargoyles. In 1908, it was Ochs who came up with the idea of the illuminated ball descending a pole as the crowd counted down to midnight.

Since he had last seen it, the gargoyle guarding the entrance to the Headmaster's study had been knocked aside; it stood lopsided, looking a little punch-drunk, and

Harry wondered whether it would be able to distinguish passwords anymore.

'Can we go up?' he asked the gargoyle.

'Feel free,' groaned the statue.

Harry Potter and the Deathly Hallows

Gargoyles came about from a simple need to drain water off the roofs of the massive, monumental religious structures that sprung up in northern Europe before the Protestant Reformation of the 16th century. If you have to do it, do it in style! Rainwater would run off angled or gabled roofs, drain down into gutters and then into a gargoyle – a water spout, which would deflect the water away from the building, preventing damage to it.



The New York gargoyle is not really a gargoyle at all. The word comes from the French *gargouille*, meaning 'throat', but if it's purely decorative, it's actually a chimera. Both look scary and are implacable defenders against the dark arts. The reason gargoyles look so frightening – all horns,

teeth and beaks – is to frighten evil spirits from religious buildings and literally regurgitate that which would damage them, in the form of water. Inside, you're safe. In the New York skyline gargoyles are sentinels, keeping guard over cathedrals, bookstores, banks, offices and schools – all with the best vantage points in the city.

1 Times Square was only the tallest skyscraper in the world for a short time; its record didn't last a year and the newspaper moved out within a decade. The building was sold, resold and renovated. In the Nineties, it was finally completely hidden by the advertising displays we know today. But it's still there, unseen by the millions that pass by. As for one of the New York gargoyles – it now lives on the third floor of the New-York Historical Society museum, continuing its endless vigil.



He pushed his greying hair out of his eyes, thought for a moment, then said, 'That's where all of this starts – with my becoming a werewolf. None of this could have happened if I hadn't been bitten... and if I hadn't been so foolhardy...'

Harry Potter and the Prisoner of Azkaban

Harry's favourite teacher of Defence Against the Dark Arts was Remus Lupin: warrior in the First Wizarding War, close friend to Harry's departed parents, teacher of the Patronus Charm, provider of chocolate in a crisis... and werewolf.

In the wizarding world, it's hard to be a werewolf. The monthly transformations take their toll on the body. They are largely shunned by the wizarding world, with few career options or chances of friendship. If left alone, the werewolf will injure itself in frustration, or if it gets desperate.

'My transformations in those days were – were terrible. It is very painful to turn into a werewolf. I was separated from humans to bite, so I bit and scratched myself instead. The villagers heard the noise and the screaming and thought they were hearing particularly violent spirits. Dumbledore encouraged the rumour... even now, when the house has been silent for years, the villagers don't dare approach it...'

Harry Potter and the Prisoner of Azkaban

Back in the 15th century, Johann Geiler von Kaysersberg was considered one of the greatest preachers of his age. His sermons were so popular that they even built him his own pulpit in Strasbourg cathedral. He was known as 'the educator of Germany'. During a series of sermons for Lent in 1508, he (naturally!) decided to cover werewolves.

Collected in a publication called *De Emeis* ('The Ants'), alongside a woodcut of a fierce wolf attacking an old, bearded man, von Kaysersberg's sermon listed seven reasons why werewolves attack people: 1) hunger, 2) savageness, 3) old age (of the werewolf, not its victim), 4) experience, 5) madness, 6) the devil and 7) God, for reasons which aren't immediately clear.

There was a terrible snarling noise. Lupin's head was lengthening. So was his body. His shoulders were hunching. Hair was sprouting visibly on his face and hands, which were curling into clawed paws.

Harry Potter and the Prisoner of Azkaban

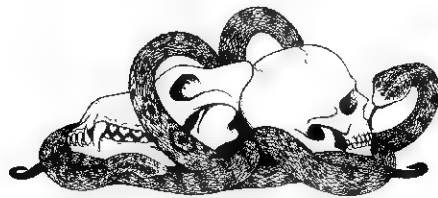
Tales of werewolves also sometimes formed a part of witchcraft trials. There were occasional accusations of lycanthropy – transforming into a wolf – along with wolf charming or wolf riding. Throughout the 16th to 18th centuries, there were sporadic trials across Europe in which men and women confessed that a demon had given them a ‘wolf skin’, which they hid under a rock when they weren’t using it.

It’s possible that Johann Geiler von Kaysersberg was aware of stories about lycanthropy, but several of his sermons were copied down and published without his approval, so there is a chance that this lupine-themed sermon was attributed to him when he never actually said it. Nonetheless, the powerful legend of shape-shifters had begun to take hold in central Europe five hundred years ago, and it still haunts popular culture today – let’s face it, it’s hard to look at a full moon without thinking about Lupin and *that* transformation.



You’ll need to be prepared to face a number of strange and sometimes frightening creatures such as werewolves in Defence Against the Dark Arts. The subject at Hogwarts is beset with calamity, its roll-call of teachers cursed with dark

secrets or uncontrollable character traits (not to mention physical transformations!). In the beginning, the lessons teach a form of protection against Dark Magic and dark creatures, and for Harry, all of that is in aid of the best cause of all: defeating Lord Voldemort. No one said *that* would be easy, as the nature of the evil he embodies changes many times during the character's development. Harry needs more than a snakelike wand to cast out that particular evil, but he succeeds – eventually.



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Harry Potter

A HISTORY OF MAGIC



*A JOURNEY
THROUGH*

Potions &
Herbology

Harry Potter

A HISTORY OF MAGIC



A JOURNEY THROUGH
Potions & Herbology

Illustrations by
Rohan Daniel Eason

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POTIONS

'As there is little foolish wand-waving here, many of you will hardly believe this is magic. I don't expect you will really understand the beauty of the softly simmering cauldron with its shimmering fumes, the delicate power of liquids that creep through human veins, bewitching the mind, ensnaring the senses... I can teach you how to bottle fame, brew glory, even stopper death — if you aren't as big a bunch of dunderheads as I usually have to teach.'

Professor Snape — *Harry Potter and the Philosopher's Stone*

We all know that Harry became a dab hand at Potions with a little help from the Half-Blood Prince; this was a fictional example of the handing down of knowledge over the centuries when it comes to mystical brews. Potions have been made for thousands of years – associated with bubbling pots and mysterious ingredients, they have been brewed to make medicines, drugs and poisons.

Alchemists dabbled a lot in potions, as well as making the legendary Philosopher's Stone, which could reportedly transform base metal into gold and held the key to everlasting life. Potions can even be concocted to conjure

different weather events. Their use in the community was well established, which has been proven by the medical books handed down through history, advocating their use.

Medieval apothecaries greatly contributed to the development of medical science; it is an art still practised to some extent in the pharmacies of today. Snape made Potions sound scary (he would, wouldn't he?), but it's also a fascinating subject.



PART 1: FROM APOTHECARIES TO CAULDRONS

Then they visited the Apothecary, which was fascinating enough to make up for its horrible smell, a mixture of bad eggs and rotted cabbages. Barrels of slimy stuff stood on the floor; jars of herbs, dried roots, and bright powders lined the walls; bundles of feathers, strings of fangs, and snarled claws hung from the ceiling.

Harry Potter and the Philosopher's Stone

When Harry and Hagrid visited the apothecary in Diagon Alley, they were met with an assortment of 'slimy stuff', herb jars, roots, powders, feathers and claws. Historically, an apothecary served as a sort of chemist or pharmacist, and texts recording symptoms and prescriptions have been found originating in the ancient societies of China, Babylon and Egypt.

Apothecaries kept guides for supplying remedies. If you walked into an apothecary shop with a cough, migraine or headache, the owner would open their book of secrets. In a typical 14th-century manuscript, there would have been a lot of illustrations and recipes, which would point to lots of ingredients from the natural world. People from the Middle Ages had a much closer working relationship with these natural ingredients than we do today.

One such manuscript once belonged to King Henry VIII of England, an avid book collector, and was eventually acquired by the physician and collector Sir Hans Sloane, the man after whom Sloane Square in London is named. Because it would have cost so much to make the book originally, it would have been rarely opened but kept instead as a valuable possession, probably belonging to a monastery and other wealthy individuals before ending up in the royal collection.

The manuscript was beautifully made, coloured with a combination of reds, golds and a dark yet vibrant blue pigment – one of the illustrations within it depicted the apothecary consulting with a client. The client sits while the apothecary stands, conveying the higher status of the customer. But apothecaries themselves were high status – at the top of the tree in society alongside lawyers and property owners. They were wealthy, too.



It turned out that Hagrid knew quite as much about unicorns as he did about monsters, though it was clear that he found their lack of poisonous fangs disappointing.

Harry Potter and the Goblet of Fire

One magical being strongly associated with apothecaries from the Middle Ages was the unicorn. It was not unusual to

see spectacular signs hanging outside apothecary shops in the shape of a unicorn's head.

One such sign, dating from the 18th century, now resides at the Science Museum in London. Probably from England or the Netherlands, the unicorn's head is carved from oak. It appears happy, healthy and alert, with a hint of a smile and a bit of a goatee.

Extravagant shop signs were common in cities like London. They acted like logos and were an early form of branding, as well as being a useful way of navigating the streets when much of the population was illiterate. The result was streets festooned with an array of gaudy and memorable signs made from heavy wood and wrought iron, in the shape of giant frying pans, keys and coffins.

The health-and-safety conscious might spot a potential problem here, and on one particularly stormy night in London in 1718, this problem was brought home to the population. The powerful gusts of wind that whistled down the city's streets caused a huge shop sign in Bride Street in the Spitalfields area of the city to collapse – four people were killed.

This was one incident of many, but it seems that 18th-century London was slow to realise the potential dangers, because it wasn't until 1762 that a government commission was undertaken to see what they could do about it. It was decreed that signs had to be laid or mounted flat against buildings, which is why most shops and restaurants have signs like that now. Pubs proved to be an exception to the rule – luckily for the Leaky Cauldron!



Of course, the unicorn that was used to signpost the apothecary's shop wasn't real – but its horn was. Except for the fact that it was actually the tusk of a narwhal.

Narwhals are whales and are known as 'the unicorns of the sea' on account of the spiral pattern on their tusk and their rather elegant physical appearance (somewhere between a dolphin and a whale).

These 'unicorn horns' were rumoured to have unique medicinal powers – from curing leprosy to being a potent aphrodisiac. But most intriguingly, they were considered to be a universal antidote to poison. Right up until the 1780s, the French royal family had unicorn horn (in the form of a narwhal tusk) dipped into their drinks to proof the drink against poison.

Accordingly, the tusks were worth huge amounts of money and carried a lot of status. Queen Elizabeth I had

two, one of which was part of the Crown Jewels of the United Kingdom. From today's perspective, the idea of having a unicorn-horn cure might seem naïve, but even now most people don't know how their medicines work, or how they are chemically composed. In that sense, to the majority of people, taking unicorn horn would not have been that different to taking most medicines today – you take it, hope for the best and don't think twice about it when you get better.



'And the steam rising in characteristic spirals,' said Hermione enthusiastically, 'and it's supposed to smell differently to each of us, according to what attracts us, and I can smell freshly mown grass and new parchment and —'

But she turned slightly pink and did not complete the sentence.

Harry Potter and the Half-Blood Prince

One of the major figures in the Harry Potter series is the Potions master, Severus Snape, who contains many conflicting qualities and provokes a range of emotions: from fear to respect to pity. In *Harry Potter and the Half-Blood Prince*, a new Potions master takes the reins – the founder of the 'Slug Club' himself, Professor Horace Slughorn. In an early working draft of *Half-Blood Prince*, J.K. Rowling traded notes with her editor about a scene in which Hermione was

impressing Slughorn with her knowledge of the love potion Amortentia. Hermione was keen to show that she knew that it smelt differently to each person and that the smell depended on what attracted that person. She said she smelt freshly mown grass and new parchment, before she abruptly checked herself.

The other smell is never identified in the book, but it is implied these are smells that the subject loves. In 2007, J.K. Rowling revealed the unnamed Amortentia aroma that Hermione identified: the scent of Ron Weasley's hair.

In the real world, potions classes have been going on for a long time – hundreds of years, in fact. In the *Ortus sanitatis* ('The Garden of Health'), a famous medieval textbook, there is a woodcut of a potions class held in Strasbourg over five hundred years ago. It shows inattentive students gazing at stones in their hands in front of their tutor – not so different from a Potions lesson at Hogwarts!

This book is the earliest printed encyclopaedia of natural history, from 1491, but you might not recognise it as a typical reference book. In it, there are creatures we know, such as crocodiles, but also dragons, harpies and unicorns. The rivers it depicted contained both fish and mermaids and the book portrayed how the European scientific community saw the world in the late 15th century. It included plants and animals from the natural world and their medical uses, but also a world full of wonders and extraordinary creatures.

Whereas in previous eras copies of the book would be limited and shared among a privileged few, the relatively new Gutenberg printing press revolutionised how ideas were being spread in Western Europe and allowed those in the *Ortus sanitatis* to be distributed among a much wider sector of the population.

Print, like digital technology now, enabled information and knowledge to be standardised, set and disseminated faster than ever before. The more knowledge was shared, the more it was challenged, the more it was improved and the

more the scientific revolution grew, especially during the Enlightenment of the 18th century. We're sure Hermione would approve.



The instruments of the apothecary trade also stretch back through time – the pestle and mortar (these names come from the Latin words for ‘pounding’ and ‘pounder’) might be in use in your kitchen just as they were for the Aztecs, Sioux, Ancient Greeks and Celts. Their oldest use was recorded in Egyptian papyri from 1500 BC and, along with other kinds of herb grinders, they remain closely associated with pharmacies today.



Another tool of the trade is a place to store the ground results: apothecary jars. Apothecary jars from 17th-century Spain, with their hand-painted flower designs, are very beautiful and wouldn't look out of place at Hogwarts. Their

contents even sound as exotic as Felix Felicis and Amortentia:

- **Vitriol. Coerul.:** 'blue vitriol', or copper sulphate, which was used in dyes and by apothecaries to induce vomiting!
- **Ocul. Cancr.:** 'crab's eyes', really a stony mass taken from the stomach of a putrefied crayfish. Used – ironically enough – to ease stomach ache.
- **Sang. Draco.:** 'dragon's blood' (you might remember that in the Harry Potter stories Albus Dumbledore was an expert in dragon's blood), purportedly the blood of dragons or elephants, but actually a bright-red resin from a tree found in Morocco, Cape Verde and the Canary Islands, *Dracaena Draco* – the dragon tree. Used to treat ailments like haemorrhoids, as an ingredient in 18th-century toothpaste and today as a varnish for violins.



The next two days passed without great incident, unless you counted Neville melting his sixth cauldron in Potions.

Harry Potter and the Goblet of Fire

Perhaps the most famous depictions of potion-brewing are of witches bent over a flaming pot or a bubbling cauldron. One of the earliest images like this can be found in *De Ianiis*

et phitonicis mulieribu ('On Witches and Female Fortune Tellers') by Ulrich Molitor, in which the witches appear to be trying to summon a fearsome hailstorm. Molitor wrote his book in Cologne, Germany, following the collapse of a trial in which a woman called Helena Scheuberin was cleared of being a witch. Her prosecutor had been Heinrich Kramer, the author of an infamous witch-hunting manual, *Malleus maleficarum* ('The Hammer of the Witches').

Unconvinced of Kramer's claims and methods, Sigismund III, Archduke of Austria and Tyrol, commissioned Molitor as a top legal scholar to investigate and clarify the witchcraft issue. Molitor's view was that witches were dangerous, but only if they were in league with the devil, and were ultimately few and far between. Molitor was a moderate and he wanted to cool the atmosphere of paranoia and confusion around the issue of witches. *On Witches and Female Fortune Tellers* is written as a dialogue between Molitor and the archduke, and although the words urged calm, the illustrations pulled in the other direction. A woodcut of two old witches throwing a cockerel and a snake into a flaming cauldron, triggering a hailstorm which destroys crops, is the earliest printed depiction of witches using a cauldron.

Molitor's book was published in 1489, two years after Kramer's, and also became an influential bestseller, but not in the way it was intended. The images instilled fear in a largely illiterate public. The book remained in print for a hundred years, enough time to sear the trope of the witch and her cauldron into the popular imagination for ever after. When Hermione throws ingredients into a cauldron and begins to stir feverishly, it is an act continuing an artistic representation that has endured down the centuries.

Hermione threw the new ingredients into the cauldron and began to stir feverishly.

'It'll be ready in a fortnight,' she said happily.

Harry Potter and the Chamber of Secrets



That is not to say that cauldrons were never used before they were depicted in Molitor's book. One was recovered from the sludge of the River Thames in London when it was dredged in 1861 – amazingly, the artefact dated from between 800 and 600 BC. The 'Battersea Cauldron', as it came to be known (because it was found just downstream of Chelsea Bridge, near Battersea), was made of seven sheets of bronze riveted together with a corrugated rim that was extra strong and had free-moving handles attached. It was huge and the strips of metal that held the rim to the body were individually patterned. Around sixty Bronze Age cauldrons have been found in the UK, almost all of them in

bodies of water; they may have been used to make offerings, or maybe they had some other purpose. Since there are no written records from this period, the precise use of the 'Battersea Cauldron' will have to remain a mystery, though it would probably have been used for feasting rather than potion-brewing (sadly).



PART 2: LEECHBOOKS AND BEZOAR STONES

Some potions-related artefacts have grown in stature over time, and *Bald's Leechbook* is one of them. An old medical text from the 9th century, 'Bald' is actually the name of the owner of the book, which itself is named after leechdoms, a sort of medieval medicine. Medicine in Anglo-Saxon England was a mix of charms, remnants of classical theories and practice, folklore and faith-healing. As such, some of the ideas in the book appear bizarre.

For example, a modern doctor wouldn't advise mixing dog urine and mouse blood to get rid of warts, or that to counteract a snakebite you need to smear earwax around the wound and recite the Prayer of St John. Neither would your local vet suggest that pain in domestic animals might be caused by elves. And though midwives might still point out that a baby unborn after the tenth month could be fatal to the mother, they won't add that this is especially true on Monday nights!

'Now then, now then, now then,' said Slughorn, whose massive outline was quivering through the many shimmering vapours. 'Scales out, everyone, and potion kits, and don't forget your copies of Advanced Potion-Making...'

Harry Potter and the Half-Blood Prince

Incredibly, however, some of Bald's cures still hold true today. One of the recommended cures – involving leek, garlic, wine and part of a cow's stomach – was tested in 2015 and found to be as effective against MRSA as modern antibiotics. Likewise, a nettle-based ointment for muscle pain and a herb-based cough treatment are similar to ones sold in chemists and health-food shops today. The book's advice on how stitches will dissolve, what to use as an antiseptic and even how to perform surgery for a cleft lip indicate that in the Middle Ages people knew something about what they were doing and which herbs combatted which diseases. It was a well-travelled document, too, containing some of the best Mediterranean medicine from the 3rd to 9th centuries. Information was transmitted across borders and national boundaries that we know well today but that didn't exist in the Middle Ages. *Bald's Leechbook* would make a mean accompaniment to *Advanced Potion-Making*.



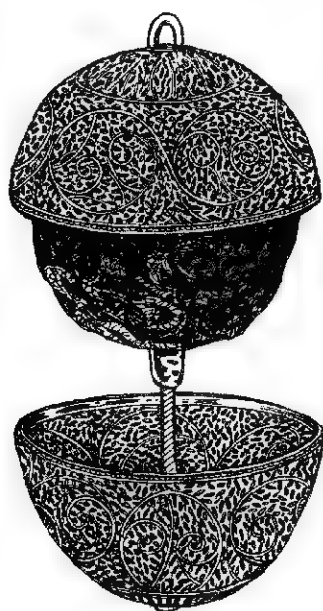
Harry bent over the Half-Blood Prince's book and turned a few pages with unnecessary force. And there it was, scrawled right across a long list of antidotes.

Just shove a bezoar down their throats.

Harry Potter and the Half-Blood Prince

Speaking of which, it's in the Half-Blood Prince's copy of *Advanced Potion-Making* by Libatius Borage that Harry learns what a bezoar stone is made from. Harry famously shoved a bezoar down Ron's throat when he drank some poisoned oak-matured mead intended for Professor Dumbledore.

Bezoar stones are masses of undigested fibres that form in the stomachs of certain animals, especially of the bezoar goat. Throughout the Middle Ages and early modern period they were considered a universal antidote to all poisons. In the real world, bezoar stones were often enclosed in gold filigree cases, showing that their owners (gentlemen, noblemen, kings and popes) were keen not to get poisoned, and were wealthy enough to own such exotic goods – even if the exotic good was essentially gunk from a goat's stomach.



Someone who wasn't as lucky as Ron was a French cook who, in 1567, had been condemned to hang for stealing some cutlery. Ambrose Paré, a barber-surgeon to the French monarchy, wanted to do a grisly experiment to see whether the bezoar stone was indeed an antidote to poison. He offered the cook a deal: instead of being hanged, he would

be poisoned, but he would also be offered the protection of consuming a bezoar stone. If he lived, he would go free. The cook was given a sublimate of mercury and, unfortunately, the bezoar stone offered no defence. He suffered great torment for seven hours, vomiting and emitting blood from his ears, nose and mouth. When Paré opened him up posthumously he found his stomach black and dry, as if it had been burned.

If there can be any justification for the brutality here, it's that it showcases a form of proto-science which is based on experimentation and observation rather than parroting Classical authors and texts. This was the development of the scientific method in action: learning through the observation of natural phenomena. Mind you, that wouldn't bring any comfort to that particular French chef.

'Let's try again. Potter, where would you look if I told you to find me a bezoar?'

Hermione stretched her hand as high into the air as it would go without her leaving her seat, but Harry didn't have the faintest idea what a bezoar was.

Harry Potter and the Philosopher's Stone

Bezoar stones crop up in many real-life old books and manuscripts; one of the most important of these is *The Compleat History of Druggs* by Pierre Pomet. Pomet was a traveller, collector, writer and medical researcher. His expertise led him to become chief druggist to Louis XIV, probably the most powerful monarch of the 17th century. He specialised in purveying exotic remedies from distant lands. Regarded as the most authoritative and comprehensive book on medicines of its time, *The Compleat History of*

Druggs was a source of fascination to curious readers as well as medical professionals.

In his book, Pomet is pretty specific in his recommendations about how to attain a bezoar stone – you could get one from a cow, but a goat bezoar stone was better. A really rare ape bezoar trumped them all. These were good examples of the kinds of items that were being brought back from (what were perceived as) far-flung regions by countries that were developing their empires in the Far East, India and South America.



PART 3: THE PHILOSOPHER'S STONE – AN ALCHEMIST'S TRUE CALLING

The ancient study of alchemy is concerned with making the Philosopher's Stone, a legendary substance with astonishing powers. The Stone will transform any metal into pure gold. It also produces the Elixir of Life, which will make the drinker immortal.

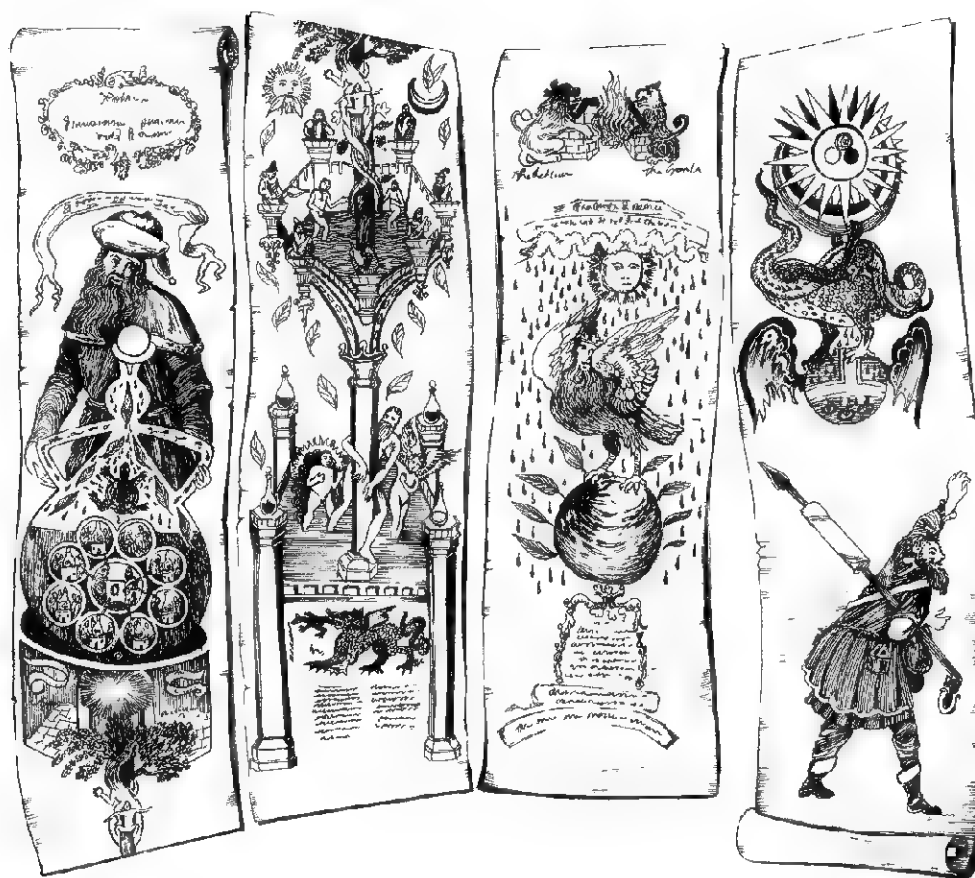
Harry Potter and the Philosopher's Stone

The Harry Potter series began with the search for one legendary object: the Philosopher's Stone. A substance with unique properties, it was believed to change other metals into gold and to produce the Elixir of Life, which would grant everlasting life to whoever drank it. As well as the subject of the first Harry Potter novel, it was the object of desire for alchemists throughout history and, as such, has been the feature of both scientific texts and works of art for centuries.

What the Philosopher's Stone is actually supposed to look like is unknown. What colour is it? Does it glow? Is it solid, or a residue of an experiment? Where do you keep it?

There is an amazing, richly illustrated artefact that explains how to best use the Philosopher's Stone: the Ripley Scroll. The Ripley Scroll is a six-metre-long alchemical treatise, covered in illustrations of dragons, toads and birds,

and including a text called 'Verses upon the Elixir'. When hung up, it is as tall as an adult giraffe, and there are only 22 known copies in the world. One is kept at the British Library. Another is kept at Yale University's Beinecke Library. They share iconography but portray the alchemical process in a different order. It's not certain which of these two scrolls on either side of the Atlantic would give you a better chance of producing gold.



The original scroll and its copies are named after the English mystic George Ripley, who was the canon (senior priest) of Bridlington Priory in Yorkshire, England, in the 15th century, and reputedly an alchemist. He wrote a book known as *The Compound of Alchymy*, but it wasn't until much later, in the 16th century, that people attributed to him the idea of making your own Philosopher's Stone.

If this mysterious scroll is unfurled and its instructions followed, you can learn how to turn base metal into gold and live forever. To be honest, people have been trying and failing to do this for centuries, so the chances of success aren't very high, but here we go...

Stage One:

At the head of the scroll is a red-robed, white-bearded figure who looks like the traditional European-American figure of Father Christmas. It's not him, sadly; the image is of the legendary Egyptian sage Hermes Trismegistus. He holds a huge alchemical vessel that's nearly as big as he is. Inside it are eight scenes, mostly showing wise men gazing into more alchemical vessels that contain human figures. Some of them look like they represent Adam and Eve. But there's a big picture in the centre - it's Hermes presenting a secret book to Ripley himself.

Stage Two:

Here, a large tree emerges from a pool of water, with snakes twisting around it. Adam and Eve are definitely represented in the pool this time. To a trained alchemist, this image is highly symbolic and informative: the tree represents knowledge; the snakes represent the Roman god Mercury; Adam represents the chemical sulphur, and Eve, the chemical mercury. At this stage of the scroll, a **white stone** is created.

Stage Three:

Beneath the white stone, a dragon is eating a toad. At the time the scroll was made, it was believed that toads were created spontaneously, rather than developing into tadpoles from eggs. The dragon and toad in this instance also spontaneously create a **black stone**.

Stage Four:

Here, a red lion and a green lion stand either side of a furious fire. Any alchemist worth his salt knew what this meant: that red sulphur and the ore from which essence of mercury is extracted are added to the black stone over heat, to create the **red stone**.

Stage Five (nearly there):

Here we meet the glorious golden bird, Hermes – like a golden eagle but with the face of a man wearing a crown. The bird represents regeneration and the powerful vapours created in the making of the stone.

Stage Six:

Finally – the Philosopher's Stone. It's represented as the three coloured stones: red, white and black. They're shown inside a bright burning sun, signifying gold, and circled by a crescent moon, signifying silver. The stones are held aloft by a dragon.

The final figure is of a man holding a giant quill pen. Perhaps this is Ripley. After all that, he must be exhausted.



If you've followed the instructions to the letter, you come up with three different-coloured stones in the course of the process: red, black and white. The colours of the stones have connections with the names of key characters in the Harry Potter series. The red stone has a connection to Rubeus Hagrid, whose name in Latin means 'red'; likewise the white stone to Albus Dumbledore, whose first name means 'white',

and the black stone to Sirius Black (for obvious reasons). Arguably, the three father figures of Harry Potter are bound together in the colours of the Philosopher's Stone.

There have been many reports of the Philosopher's Stone over the centuries, but the only Stone currently in existence belongs to Mr Nicolas Flamel, the noted alchemist and opera lover. Mr Flamel, who celebrated his six hundred and sixty-fifth birthday last year, enjoys a quiet life in Devon with his wife, Perenelle (six hundred and fifty-eight).

Harry Potter and the Philosopher's Stone

Whether you've managed to successfully create the Philosopher's Stone or not, someone who certainly did so in the wizarding world was Nicolas Flamel. In *Harry Potter and the Philosopher's Stone*, Nicolas Flamel has created one and hidden it in Hogwarts. There really was a Nicolas Flamel, who lived in Paris in the late 14th and early 15th century.

Supposedly, he never died, but it looks like he might have done because there's a tombstone with his name on it in the church of Saint-Jacques-de-la-Boucherie in Paris. The medieval tombstone is quite small, at just over 50 centimetres high – at its top is a scene showing Christ flanked by saints Peter and Paul, along with the sun and the moon. At the bottom is the dead body of Flamel. Flamel was said to have designed the tombstone himself and it was discovered some time in the 19th century in a Parisian grocer's shop, where it was being used as a chopping board.



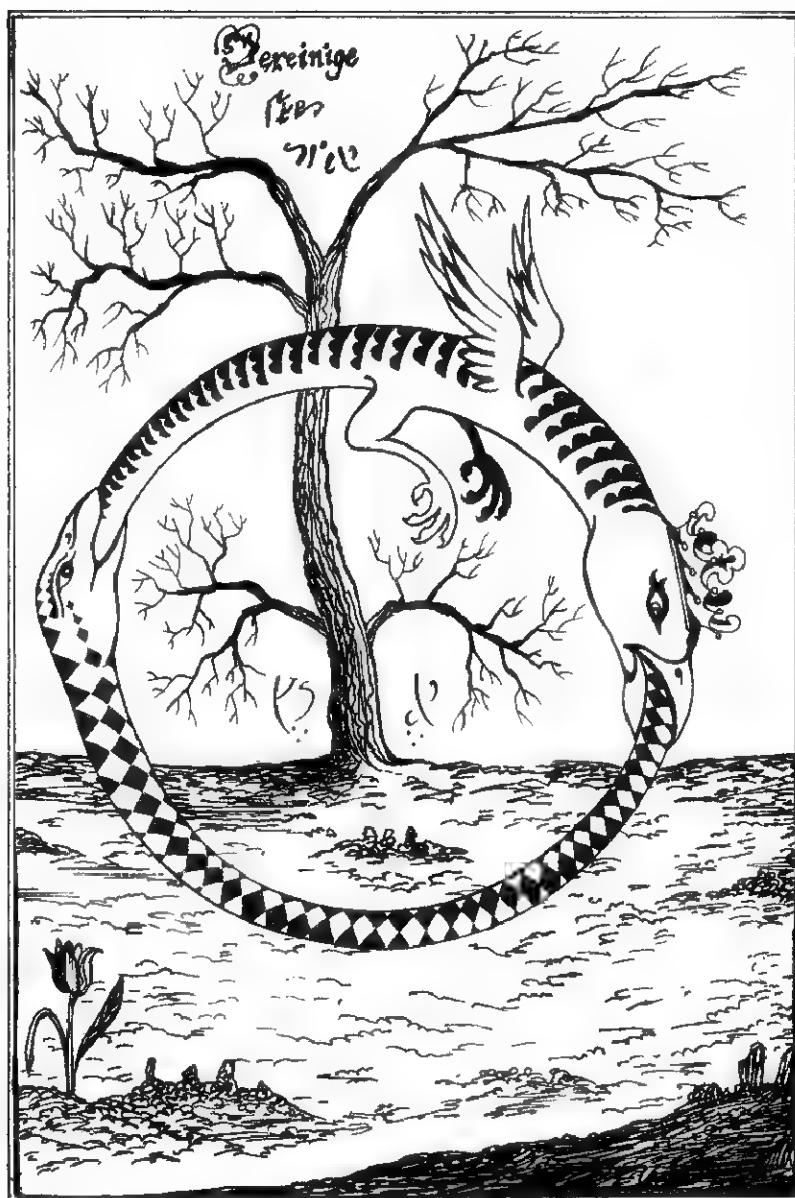
Soon after Flamel's death, stories and legends began to spring up around him. People claimed that his grave was dug up but there was no body inside. And the most popular one suggested that he was a book dealer who came across a mysterious and magical book, and that he made it his life's work to translate the text. The story was that after years of relentless study and travel he finally managed to unlock its powerful secrets. The legend of Flamel grew with each decade and saw him mentioned by Isaac Newton in his journals and Victor Hugo in *The Hunchback of Notre Dame*.

There is no evidence, however, to suggest that Nicolas Flamel was ever involved in the book trade. He was wealthy, certainly, but this was because he married a rich widow and

owned lots of property as a result: he was a landlord. He was also interested in commissioning large-scale tombs, which had various religious symbols on them, and in subsequent books written about his life these were interpreted as depicting alchemical experiments, such as how to make the Philosopher's Stone. His tomb commissions grew his own legend posthumously.

Books written later in the 17th and 18th centuries debunked the idea that Flamel was an alchemist, recovering documentary evidence such as his will, but, due to the way these books were illustrated, they only served to have the opposite effect. This mythologising of Flamel continues today – there are Flamel tours in Paris; there is also a street named after him and another after his wife, as well as a plaque. Not to mention the depiction of him in modern works of fiction, and films... Who knows what he'd make of it all if he had actually lived all this time?

According to legend, Flamel was instructed in a dream to seek out a book that would tell him how to make the Philosopher's Stone. The legend states that Flamel travelled to Spain to find a Jew who could help him translate the work, and that he came back with the knowledge to develop the Philosopher's Stone. A book first published in Germany in 1735 entitled *Uraltes Chymisches Werck* ('Age-Old Chemical Work') claimed to be a translation of this fabled book. It is full of strange alchemical symbols in different languages – principally Hebrew.



One of the most striking images in the book is of a serpent and crowned dragon eating each other's tails. This is a common alchemical symbol called an *Ourobouros*, symbolising the cycle of birth and death, and the unification of *prima materia* ('primary matter') with *spiritus universalis* ('universal spirit'). This unification was essential to making the stone. Despite the beauty of the illustrations, the fact remains that Flamel wasn't an alchemist and no one knows whether Rabbi Abraham Eleazar (named as the book's author) was a real historical figure. Indeed, it's extremely

unlikely that anyone has come upon the secret to eternal life by reading that book.

So why would anyone continue to read such a book when its contents are likely as fictional as the legends of the men who brought it into being? The answer lies in the compelling allure of magic, and the sense that magic is never false, but probably just poorly executed by the practitioner.

Neville had somehow managed to melt Seamus's cauldron into a twisted blob and their potion was seeping across the stone floor, burning holes in people's shoes. Within seconds, the whole class were standing on their stools while Neville, who had been drenched in the potion when the cauldron collapsed, moaned in pain as angry red boils sprang up all over his arms and legs.

Harry Potter and the Philosopher's Stone

We can't ever be completely sure we're not tapping into a power beyond our understanding, which resonates at some deeper level with how we perceive the world. It's no coincidence that much of this powerful information comes in the form of books – books themselves exert their own magical influence by the way they are interpreted and shared, and how they transform our knowledge of our surroundings, real and imagined. For that reason, books about magic are especially powerful. But you already knew that, didn't you?



'A stone that makes gold and stops you from ever dying!' said Harry. 'No wonder Snape's after it! Anyone would want it.'

Harry Potter and the Philosopher's Stone

One of the most beautifully made alchemical treatises ever is a copy of a book called *Splendor solis*. It was originally made in Germany in 1582 and copied many times.

The very first illustration is of an alchemist. He wears a vivid red robe and red hat and is wrapped in a glorious blue cloak. Using just one hand, he holds a large flask, which is filled with a golden liquid. Emerging out of the top of the flask is a black scroll, inscribed '*Eamus quesitum quatuor elementorum naturas*' - Latin for 'Let us ask the four elements of nature'.

For an alchemist, *Splendor solis* was essential reading, not for its wonderful art, but for the secrets it contained. Its writer was purportedly a scholar called Salomon Trismosin, who claimed to have used the Philosopher's Stone to conquer old age and who lived to be 150 years old. In reality, like many other alchemists, the true story of Salomon Trismosin is hidden in the mists of time, and *Splendor solis* was based on a patchwork of earlier sources.

Other illustration highlights include an incredible flask containing a phoenix, chariots flying through the sky pulled by dragons, and what looks like a man emerging from a swamp. And amid the kings, phoenixes and three-headed dragons is supposedly a cycle and methodology for attaining the Philosopher's Stone, which alchemists have pored over in the hope of uncovering its secrets.



Another magical book that has fascinated scholars for centuries is *The Book of the Seven Climes*. The manuscript dates from the 18th century but it was the work of a 13th-century alchemist from Baghdad called Abū al-Qāsim Muhammad ibn Ahmad al-‘Irāqī, also known as al-Sīmāwī, which means a ‘practitioner of natural or white magic’. Throughout the book are illustrations of alchemists at work amid kilns, with flasks and various liquids being heated up. One of them – including a goblin-like man in a red hat, heating a flask surrounded by various birds – looks a lot like a series of hieroglyphics. This image was supposedly taken from a ‘Hidden Book’ by the sage-king of ancient Egypt, Hermes Trismegistus, who you may recall was depicted at the top of the Ripley Scroll. It was believed that he had mastered the mysteries of alchemy and recorded them as hieroglyphs on the walls of tombs, which al-‘Irāqī had painstakingly interpreted.

In fact, the image has no alchemical significance whatsoever, but it does portray the now-lost monument of an Egyptian king. It is a historical moment snatched from oblivion, but one that is more significant to Egyptologists than to alchemists. It also shows how much our scientific methodology has changed over the centuries: today, we tend to explain processes in a strict, evidence-based fashion, whereas in the past we often interpreted symbols through a mystical prism.

‘You know, the Stone was really not such a wonderful thing. As much money and life as you could want! The two things most human beings would choose above all –

the trouble is, humans do have a knack of choosing precisely those things which are worst for them.'

Albus Dumbledore - Harry Potter and the Philosopher's Stone



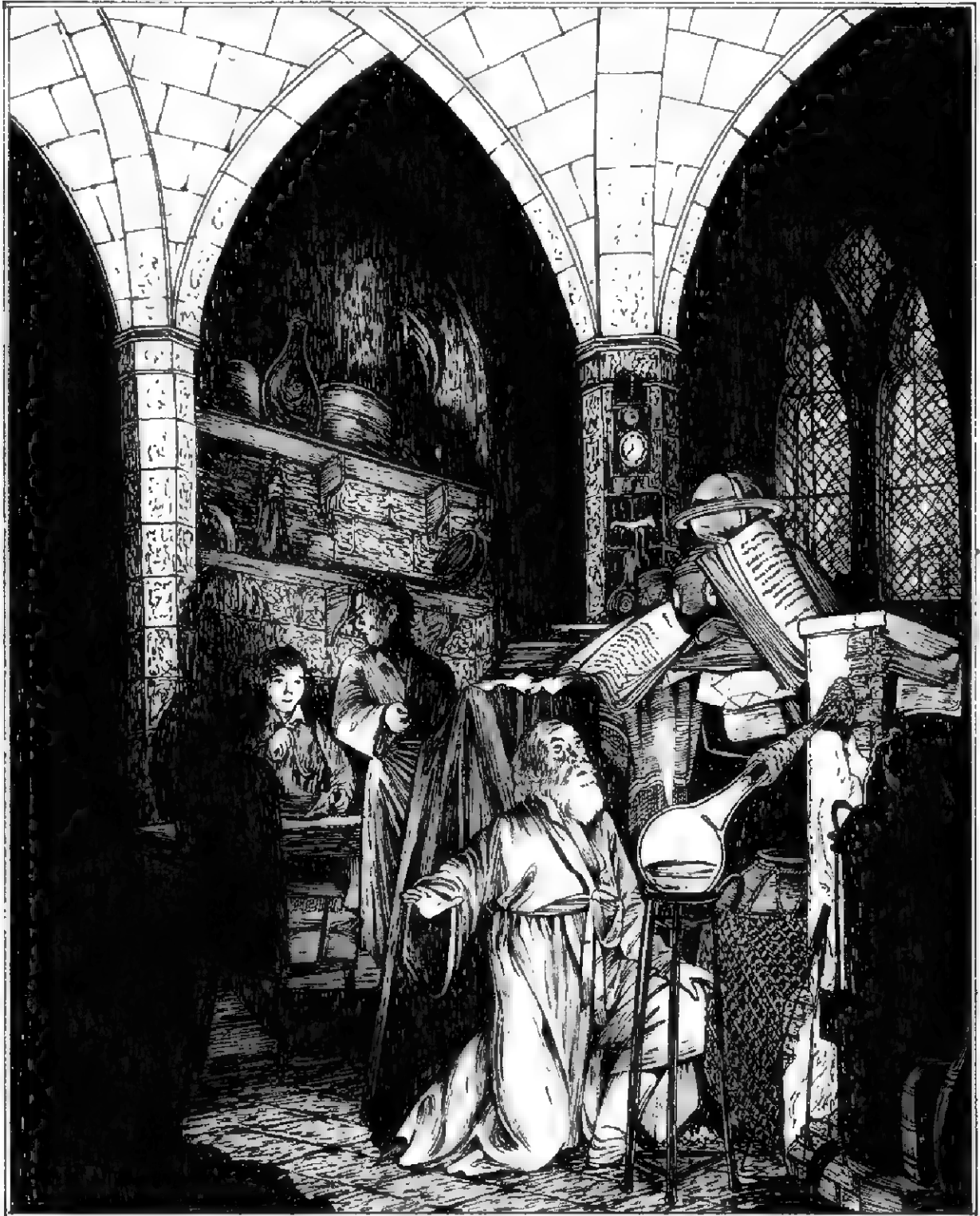
However richly the process was depicted in scrolls, manuscripts and books, questions about the nature and purpose of alchemy continued to be posed in works of art over history. *The Alchemist* is an engraving based on the work of Pieter Bruegel the Elder, one of the most significant Dutch artists of the Renaissance, and was created at some point after 1558.

It depicts a poverty-stricken alchemist having one last throw of the dice at turning base metal into gold by using his last penny, taken from the now-empty purse his wife is holding. A scholar dressed in Italian clothes is reading books and giving instructions to the failing alchemist, but out of the window is a vision of the future as the alchemist's family is welcomed into the workhouse.

The print might be about the foolishness of the whole alchemical enterprise, but it was also a broader critique on people being taken for a ride by charlatans. Bruegel was showing how alchemy was being misinterpreted as a short-term drive for wealth and immortality. In an age when there were many problems with the Catholic church, the Reformation was beginning and Protestantism was emerging, the Philosopher's Stone represented the secrets of the universe and the essence of life's energy; a source of

salvation. Alchemy was about the higher truth, but it was often misused to low ends.

A second, huge painting called *The Alchymist* (with its subtle spelling difference) was an image of magic meeting science and was painted in the late 18th century by Joseph Wright of Derby in the UK. Resembling a religious painting, the grey-haired, bearded man at its centre could be a prophet bathed in celestial light, but his church is a laboratory and the heavenly glow is actually light from the chemical element he has discovered. It was based on a real historical event: the alchemist is Hennig Brandt in Hamburg, 1669, and he was attempting to discover gold. He was trying to do this by boiling urine of all things. Gold wasn't the result, but the element he did discover was phosphorous.



As glorious as the painting appears, the process was pretty disgusting. Brandt took 50 large buckets of urine (a thousand

litres!) and let it sit for a few weeks before boiling it down to a paste the size of a bar of soap. When the substance met the air it created the brilliant light and flame of the painting. The discovery took place a hundred years before Wright was born, but the instruments and clothing of the painting are contemporary with Wright: the setting was the past, but the science belonged to the future. The painting seems to deliberately create a tension between the religion in the surroundings, the science in the discovery and the magic in the alchemical search to transmute base materials to gold. Brandt's experimentation marked a significant step in the development of chemistry, through the workings of mystical alchemy.

'Hmm... What do you think, Harry?' said Luna, looking thoughtful.

'What? Isn't there just a password?'

'Oh no, you've got to answer a question,' said Luna.

'What if you get it wrong?'

'Well, you have to wait for somebody who gets it right,' said Luna. 'That way you learn, you see?'

Harry Potter and the Deathly Hallows



Of course, Harry Potter can count himself among the legions who sought the Philosopher's Stone, in order to stop it falling into the hands of Voldemort. Its most fierce gatekeeper was the massive, monstrous three-headed dog, amusingly called Fluffy.

It was standing quite still, all six eyes staring at them, and Harry knew that the only reason they weren't already dead was that their sudden appearance had taken it by surprise, but it was quickly getting over that, there was no mistaking what those thunderous growls meant.

Harry Potter and the Philosopher's Stone

J.K. Rowling illustrated the scene in 1991, six years before the publication of *Harry Potter and the Philosopher's Stone*, as she worked out her plan for the book. Harry meets Fluffy when he is tricked by Draco Malfoy into being in the school corridor after hours with Argus Filch on his tail. Slipping out through a locked door into an out-of-bounds part of Hogwarts, he comes face to face with the petrifying pooch. The illustration captures the terrified looks on their faces at the moment when Harry, Hermione, Ron, Neville and Gary encounter the dreadful dog. But who's Gary?

He was actually an early incarnation of Dean Thomas, who, in turn, got dropped from this scene entirely (as did Neville). J.K. Rowling's working drafts and early illustrations of the Harry Potter series bear a lot in common with recovered manuscripts from other points in history. Sometimes, as in this case, they point to a deviation or a change, and sometimes (as in the case of the early working draft of 'The Man with Two Faces', the chapter that concludes the first novel) they show just how complete her detailed vision was to begin with, and how little it changed on its journey to publication. These early drafts were never intended for preservation, but like the development of science in the alchemical treatises, J.K. Rowling's work-in-progress shows the development of her wizarding world.



L-R: Hermione 2 Harry Hermione Gary

May 7. 1991

**Pen and ink drawing of Harry and his friends by
J.K. Rowling (1991)**

Fluffy is a call-back to Cerberus, the Classical three-headed mythological beast and guard dog to the gates of hell, which Hercules had to capture as one of his twelve labours. The depiction of Cerberus and Hercules by Aegidius Sadeler II, engraver in the court of Rudolf II in Prague (made some time between 1586 and 1629), made the gates of hell look like a flaming brick prison. What's interesting about the image of Hercules dragging the dark, muscular, fanged beast in his left hand and the way it is composed is the angle. You're compelled to follow the action from right to left, as opposed to the conventional Western habit of reading left to right. This inversion could be because we are in the underworld, where logic, physics and, indeed, art are turned on their head.

What also links Cerberus to Fluffy and the Philosopher's Stone is that in capturing Cerberus and taking him to King Eurystheus (who was so terrified he immediately jumped into a large jar to escape), Hercules gained immortality by completing his penance. And just like Harry in his epic struggle to find the Philosopher's Stone, Hercules did so less through physical effort than through courage and strength of mind.



The Potions classroom is a pivotal setting in the Harry Potter novels for the development of the characters' brewing skills and also their own self-knowledge. Alchemy throughout history was about the transformation of base metals into gold and the promise of eternal life, but really it is about the journey of making something of your life and becoming who you are supposed to be.

Growing up and entering your teenage years is a tumultuous time for anyone, full of fears and desires, but this

was particularly so for Harry, Hermione and Ron as they embarked on their journey into the wizarding world.



HERBOLOGY

Herbs are familiar to all of us. We grow them in gardens, see a dizzying array of them on supermarket shelves and use them to add all manner of flavours to recipes. But in the past, when most people lived in the countryside, the plants and herbs that grew all around them were nature's medicine cabinet. Herbology, the study of folk remedies and the use of plants, herbs and fungi as medical treatments, was practised and documented in scholarly books in many places on the planet. In this journey through herbology we'll see how this knowledge was compiled into a series of books called herbals, how these helped develop the science of modern medicine, and also how the myths around the magical properties of certain plants, such as mandrakes, persisted for many, many years.

Herbology is an important subject in the Harry Potter books, and becomes more central as the stories develop: from the Wolfsbane potion that alleviates the symptoms of Lupin's werewolf problem in *Harry Potter and the Prisoner of Azkaban* to the Gillyweed Harry uses to breathe underwater in *Goblet of Fire*. In order to make Polyjuice Potion (which, you'll remember, enables you to take on the appearance of another person), you need to pay attention in Herbology class, after all.



PART 1: GREENHOUSES, GARDENING TOOLS AND SOME 'HERBALS'

Professor Sprout was a squat little witch who wore a patched hat over her flyaway hair; there was usually a large amount of earth on her clothes, and her fingernails would have made Aunt Petunia faint.

Harry Potter and the Chamber of Secrets

Professor of Herbology, Pomona Sprout, was actually illustrated by J.K. Rowling in 1990, some years before the publication of *Harry Potter and the Philosopher's Stone*. In the drawing, Sprout is surrounded by all kinds of plants and cradles a cactus in one arm, while tendrils sneak out from a pot on the table. They might be sneaking around, looking for something to nibble.



Pen and ink drawing of Professor Pomona Sprout by J.K. Rowling (30 September 1990)

The plants are reminiscent of those you might find in gardens or around the English countryside, but with little twists that make them appear ever so slightly not of this world. The spider hanging off the witch's hat perhaps indicates how welcoming Sprout was to lots of different flora and fauna.

'Four to a tray - there is a large supply of pots here - compost in the sacks over there - and be careful of the Venomous Tentacula, it's teething.'

Professor Sprout - Harry Potter and the Chamber of Secrets



If you want to grow magic plants in your garden, then you need magical gardening tools. The Museum of Witchcraft and Magic in Boscastle, Cornwall, in Southwest England, has some examples of gardening implements made for magical sowing and harvesting. These are made of bone and antler, the latter in particular being a material that has huge symbolic importance. Tools shaped from antlers, which rise upwards, were thought to connect the earth with the higher spirit world, and because antlers shed and regrow, they also symbolised the magic of regeneration and renewal.



When it came to harvesting and digging up special and magical plants, it was important that the tools were formed

from natural resources so that they didn't corrupt the plants being harvested. There are many folktales about gardening: from making hot peppers hotter by planting them when angry, to guaranteeing a bountiful bean harvest by getting a pregnant woman to do the planting. Ritual and magic have an intimate connection with sowing and harvest, one born of a close relationship with nature.

At its most basic level, by finding out which plants were best ground or cooked together, people learnt about the processes of the natural world. A successful result often led to the process becoming ritualised, with people looking at the world around them and trying to understand how it related to them. Science and magic came out of the same search for knowledge about how the world worked.



Three times a week they went out to the greenhouses behind the castle to study Herbology, with a dumpy little witch called Professor Sprout, where they learned how to take care of all the strange plants and fungi, and found out what they were used for.

Harry Potter and the Philosopher's Stone

Herbals have been around for centuries. They describe the appearance and properties of plants that can be used for preparing medicines. Back in the 12th century, medical practitioners would have been using a manuscript to study medicinal plants, but a medieval herbal included more than just plants and medicines; it occasionally gave you the

myths and legends associated with how they got their names – embellishments which gave them more flavour and character. The illustrations could also be pretty extraordinary, depicting battles with rabid dogs and men urinating into cups.

One such 12th-century herbal advises those afflicted with snakebite. It recommends *Centauria major* and *Centauria minor* – the ‘greater’ and ‘lesser’ centaury – which were plants named after the Ancient Greek centaur Chiron, renowned as a physician and an oracle, too. The Ancient Greek poet Homer described Chiron as the ‘wisest and justest of all the centaurs’. Chiron was also famous for his knowledge of botany, pharmacy and herbology. In this herbal, a beautiful line drawing depicts him handing the herb centaury to Asclepius, the god of medicine and healing. The herb’s healing properties for snakebite were represented in the diagram, as well as beneath the feet of the centaur and the god, as you can see a long snake slithering away.

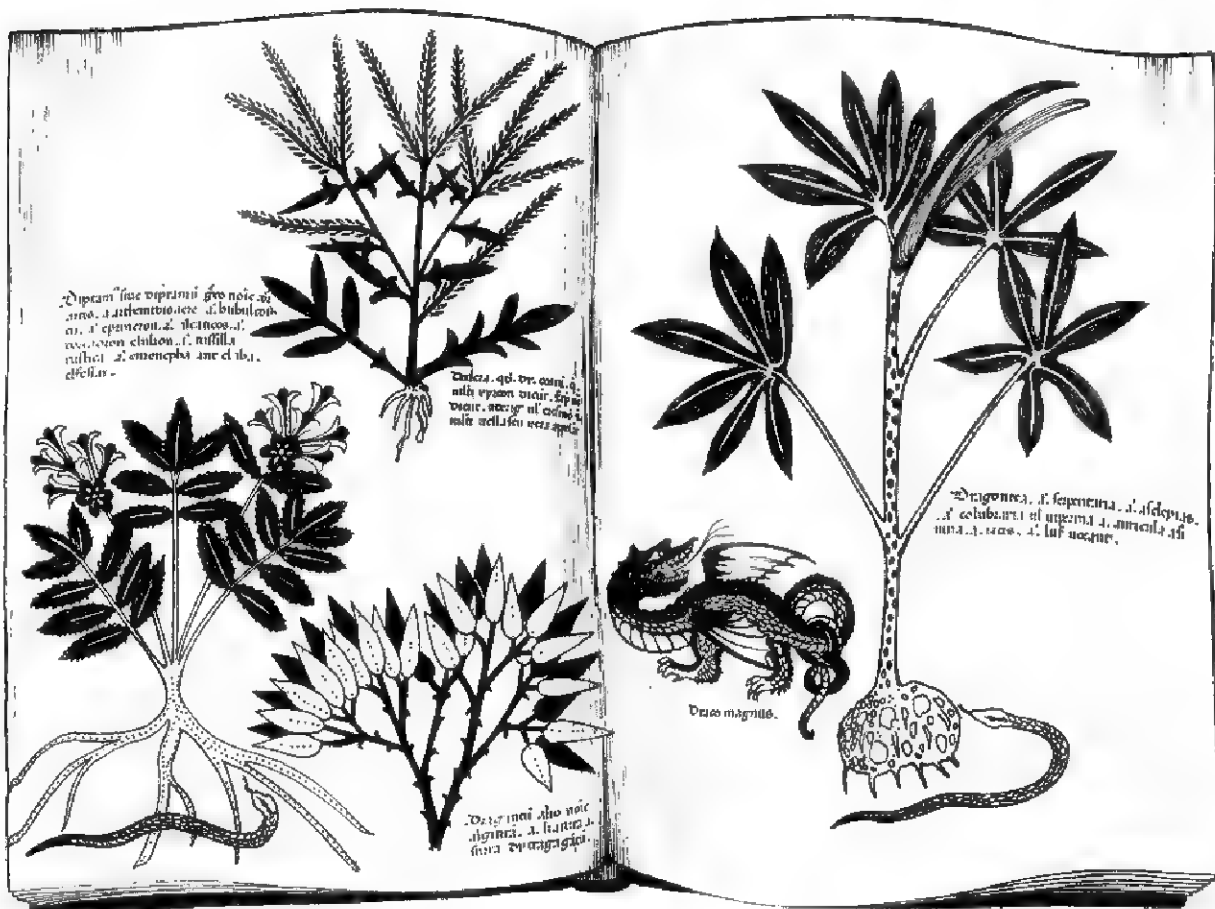


They had their Herbology exam on Wednesday (other than a small bite from a Fanged Geranium, Harry felt he had done reasonably well) [...]

Harry Potter and the Order of the Phoenix

Another example of a herbal, from around about 1440 and made in Lombardy, has illustrations so rich in their form and decoration that it was clearly made for a very wealthy

patron. These illustrations include, among other things, a demon, a mouse, a cat above a corpse in a coffin, a horse castrating itself, an aphrodisiac, a hairy elephant and another man urinating into a pot.



One illustration is of snakeroot, and it's a beautiful descriptive painting of the plant. Beside it are some of the species' Latin names - '*dragontea*', '*serpentaria*' and '*viperina*' - which tell of the plant's ability to cure snakebites. All of these were names for the same plant. There is an image of a hissing green serpent curling around the plant's root and a snarling dragon with a forked tongue and elaborately knotted tail. More lavish books were made, intended less for use by the original owner than for ostentatious display, as a thing of wonder and magic.



John Gerard's herbal, also known as the *The Herball or Generall Historie of Plantes*, was first published in 1597. It was used by botanists and medical practitioners for over two hundred years.

Even though it bears Gerard's name, the book was largely based on the work of others – the text was a translation from a Flemish botanist and hundreds of illustrations are from a German work – only sixteen of the 1,800 woodcuts printed inside were original. Even while alive, Gerard was being accused of plagiarism. It was entertainingly written and a huge success, adding in the local colour of Gerard's observations of his own garden in Holborn, London. The botanical illustrations had all kinds of advice and information: marjoram can help people 'given to much oversighing' and basil 'taketh away sorrowfulness and maketh a man merry and glad'.

Some of the book's botany seems pretty off-the-mark to the modern reader. For example, the theory that Barnacle geese didn't come from eggs but grew on Scotland's island of Orkney might not stand up to too much questioning! People didn't know how migration worked, so it's an understandable hypothesis, testing out how the world might operate.

One of Gerard's sixteen new woodcuts was the potato – thought to be the earliest published picture of one. The then-strange and newly discovered plant generated plenty of excitement. It was a delicacy that only the rich could afford and there was talk about its potential medicinal uses: one being that carrying a potato in the pocket would cure rheumatism.

The copy of Gerard's book held by the British Library is full of fascinating annotations written by hand in the margins,

much like Harry's copy of *Advanced Potion-Making* in *Half-Blood Prince*. Because the book was principally about describing plants, and not a medical book, the owner added notes about the plants' medical uses, including mention of jaundice, worms and the like, which seem more detailed than someone using it merely as a home-remedies book. But we'll never really know the true identity of this mystery person in the margins.

Nobody else was looking. Harry bent low to retrieve the book and, as he did so, he saw something scribbled along the bottom of the back cover in the same small, cramped handwriting as the instructions that had won him his bottle of Felix Felicis, now safely hidden inside a pair of socks in his trunk upstairs.

This Book is the Property of the Half-Blood Prince

Harry Potter and the Half-Blood Prince



Harry, Ron and Hermione left the castle together, crossed the vegetable patch and made for the greenhouses, where the magical plants were kept.

Harry Potter and the Chamber of Secrets

There are medical texts throughout history that could happily have sat in Professor Sprout's greenhouses or on the shelves in Madam Pomfrey's hospital wing, but probably the most famous herbal medicine book in history is Nicholas Culpeper's.

Culpeper's herbal was first published in 1652, in English rather than Latin, to reach a wider audience: there have been over 100 editions and it has never been out of print. It was taken by pilgrims to the New World and was the first medical book published in North America. J.K. Rowling owns two editions: a beautiful copy gifted to her by her publisher Bloomsbury and a well-thumbed second-hand version she used while writing and researching the Harry Potter series. The book provided a comprehensive list of native medicinal herbs, indexed against specific illnesses, and prescribed the most effective forms of treatment and when to take them.

Nicholas Culpeper – botanist, herbalist, physician and astrologer – had an extraordinary life. He was shot during the English Civil War while fighting for the Parliamentarians, his lover was struck dead by lightning as they tried to elope and he was put on trial for witchcraft. He is remembered for being a radical medical revolutionary.

He set up as an apothecary in London, creating potions and medicines based on plants and herbs that could be found in the English countryside. He shared his knowledge of natural remedies freely, putting him into conflict with the College of Physicians. They had a monopoly on practising medicine within the City of London and disliked Culpeper's interventions.

Culpeper set up just outside the City walls in the Spitalfields area (outside the jurisdiction of the College of Physicians) and worked incredibly hard – seeing up to forty patients in a morning and charging little or no money for it. He pioneered an early kind of free health service.

He was scathing of other physicians' methods. A lot of their diagnoses relied on examining urine, sometimes

without even seeing the patient personally. He wrote that proper investigation 'is a better way to find the disease than viewing the piss, though a man should view as much piss as the Thames might hold'.

Culpeper advocated natural remedies, but also turned to astrology, believing that the planets could cure different parts of the body: Saturn the spleen, Jupiter the liver and Mars the gall, and, of course, Venus 'the instruments of Generation'. In doing so, he innovated a form of medical astrology: he listed the types of herbs and plants to be used for certain cures and in turn related those to the stars, to say what time of year or month was best to take them for the best effect. He saw traditional medicinal practices and astrology as intertwined.

Maybe the mix was a little *too* dangerous, however, because he was accused of witchcraft by a patient who claimed to be wasting away after consulting him, and Culpeper was imprisoned. He was acquitted, but his use of astrology and his antagonism of the medical establishment marked him out as trouble. Unperturbed, he continued his practice and his herbal was published ten years later.



PART 2: FLOWER PRESSING, FLOWER TEMPLES AND STINK LILIES

'Oh, hello there!' Lockhart called, beaming around at the assembled students. 'Just been showing Professor Sprout the right way to doctor a Whomping Willow! But I don't want you running away with the idea that I'm better at Herbology than she is! I just happen to have met several of these exotic plants on my travels...'

Harry Potter and the Chamber of Secrets

Flower pressing, or preserving flowers by placing them between sheets of paper and then drying them out by applying a large weight, has been a popular hobby among children and adults alike for centuries. The oldest existing book of dried flowers – or *herbarium* – was created by Gherardo Cibo, who made it while studying at the most advanced botanical garden in Europe, in Bologna, Italy.

In his early years he travelled widely between Rome, Germany, Spain and the Low Countries, but around the year 1540, at the age of 28, Cibo settled in Rocco Contrada, then a flourishing Italian city with a burgeoning academic reputation. Here, he also made a visual diary of his plant-collecting excursions – with superb, and unusual, illustrations. The plants, often in the foreground, tend to

dwarf any people set alongside them. The scale is all over the place, as botanists hack at the roots of giant snowdrops, a lily towers over a walled village and a wild peony is the largest plant in a forest with birds flying among its petals.

Cibo was nonetheless praised for his observations and artwork. He was part of a movement in Renaissance botanical science: a period of collecting specimens (in some cases bringing them back home for cultivation), as well as discovering and identifying vast numbers of new species or subspecies of various plants. Cibo is representative of a time when people were trying to find out about the world through scientific discoveries, but when many botanical matters were still misunderstood or not understood at all – a time when science, magic, tradition, mythology and folklore were still very much mixed together.



While Cibo's quirky illustrations were an exaggeration of the plants he saw in the Italian countryside, the *Hortus Eystettensis* of the early 17th century is an extraordinary record of a very particular garden: the garden of Eichstätt in Bavaria, Germany.

Commissioned in 1611 by Johann Konrad von Gemmingen, Prince Bishop of Eichstätt, the *Hortus Eystettensis* is a magnificent catalogue of plants grown in the bishop's palace garden. It contains the finest botanical drawings of their time and set the standard as to how botanical drawings should be done.

Eichstätt was the first botanical garden in Europe outside Italy and the bishop decided he wanted to record his spectacular garden by publishing a book that included every single species in it – a massive undertaking for a garden with over a thousand plants. It took so long that the bishop

died before it was completed. The book was finally published a couple of years later, in 1613, and is sometimes referred to as the *Florilegium*, which is Latin for 'a gathering of flowers'.

The man in charge of this huge project was Basilius Besler, a horticulturalist and an apothecary, which meant he understood the plants like a gardener but also knew their medicinal properties. He was effectively the project manager, being neither the writer, nor the artist. Harry may have forgotten the hellebore in his Draught of Peace, but it was well known to Besler, who cultivated several varieties in the garden, one of which was *Helleborus niger* (black hellebore), used as a medicine since antiquity, although today it is considered a poison.

The book was hugely expensive to produce and there were many wrangles about cost between Besler and the bishop's diocese, but Besler saw it as a means to make some money! There were two different editions: one was black and white with explanatory text, and cost 35 florins. The other had no text, was hand-coloured and cost an eye-watering 500 florins (over \$ 70,000 or 60,000 Euros in today's money).

The exorbitant cost of the hand-coloured edition didn't put off Duke August of Brunswick-Lüneburg, though, who was so impressed that he not only bought the expensive copy for himself, but also further copies for family and friends. Overall, the book was a huge success and enabled Besler to buy himself a large house in a fashionable district of Nuremberg. The house cost 2,500 florins – the price of five coloured copies of his *Hortus Eystettensis*.

It was clearly a huge aesthetic success, but it is hard to exaggerate the importance of this book in terms of botanical illustrations. Its level of observation was outstanding, but it also captured the medicinal and scientific importance of the plants – all in one magnificent, ground-breaking book.



While Gherardo Cibo might have been busy flower pressing back in 16th-century Italy, 17th-century English botanist John Evelyn took it to a whole new level in his *Hortus hyemalis*.

Evelyn was someone who involved himself in a vast and varied array of ventures: he kept a diary at the same time as his friend, the world-famous diarist Samuel Pepys; he was a founding member of the Royal Society; wrote an influential pamphlet on the problem of pollution in London; published a seminal paper on forest management and conservation; discussed architecture with Christopher Wren and introduced the word 'avenue' into the English landscape. He even brought the first written record of a salad dressing made with olive oil into the UK. Yet flowers and plants seem to have held a special place in his heart.

Evelyn was often described by his contemporaries as 'a great projector', which is a term that denotes someone who is pursuing great projects. Evelyn always had a big project on the go, and one of these was to create an encyclopaedic history of gardens and gardening. He spent much of his lifetime compiling this.

He developed his interest in botany, and created the collection, in Padua, Italy, where he took samples from the city's public botanic garden. As such, it is a very accurate and closely observed book of plants, which is part of the same process as the naming, itemising and categorising involved in his other great project, the encyclopaedic history of gardens (which, like many of Evelyn's projects, remained unfinished). But, along with others across Europe, he laid the foundations for future generations to explore plants and gardens. Samuel Pepys was impressed, and judged *Hortus hyemalis* 'better than any Herball'.



His heart sank. He had not added syrup of hellebore, but had proceeded straight to the fourth line of the instructions after allowing his potion to simmer for seven minutes.

Harry Potter and the Order of the Phoenix

For hundreds of years, apothecaries, professors and ardent students continued to press and preserve plants in 'dried gardens' (*horti sicci*) – around the turn of the 18th century, loose-leaf pages became the preferred means for preserving plants and recording their data, allowing for rearrangement and easy comparison.

This also meant that the classification of plants was a big source of debate in the 17th and 18th centuries – plants were often known by their local common name, but that varied in different parts of the world and even different parts of the same country. Botanists used Latin names – but they were long and descriptive and also varied from place to place, or even person to person. In the end, the system developed by Swedish botanist, physician and zoologist Carl Linnaeus was universally adopted. The Linnaeus system was a revolutionary taxonomic system and an ordered scientific way of naming things.

It's known as binomial nomenclature. In other words, it was a 'two-name system'. There was a genus and a species name. So, for example, *Homo* is the genus, *sapiens* the specific name. The same as genus *Tyrannosaurus*, specific name *rex*.

In the case of the flower *Adonis vernalis*, or fake hellebore, the genus is *Adonis* and the specific name *vernalis*. The plant contains toxic substances, but the above-ground parts were used in folk medicinal remedies for fever and intestinal worms. It originally takes its Latin name from Adonis in Greek mythology – a mortal man so beautiful that the goddess Aphrodite fell in love with him. When he was killed by a wild boar, Aphrodite wept and her tears transformed into the Pheasant's-eye's golden bloom. It is difficult to shake colloquial names for plants, and people still call it 'Pheasant's-eye'. However, Linnaeus's naming system has dominated horticulture for over two hundred years – and in developing it, he used a system of separate specimens on unbound papers.



A beautifully illustrated 19th-century manuscript from China called *Du Cao* deals in depth with the topic of poisonous and medicinal plants. In it, there is a fascinating plant known as 'devil's tongue' or the 'voodoo lily', of the same genus as Titan Arum, which is known as the foulest-smelling plant on the planet. Like Titan Arum, it reeks of rotting carcass.

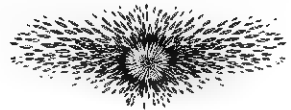
The left-hand side of one of the pages in *Du Cao* is covered in Chinese characters, while the right has a superb illustration of the flower. On one such page there's a large single leaf with a red interior that collars a single upright purple spike called a *spadix*. The flower's Latin name was *Amorphophallus konjac*. *Amorpho* means 'misshapen' and *phallus* means 'penis'...

The plant is still used today in dietary supplements, noodles and exfoliating sponges. The roots of Chinese medicine go back thousands of years; its origins are

mythical and the traditional story is that it all started with a fabled ruler, called Shen Nong.

Shen Nong was a 'divine farmer': a mythical sage ruler who lived about four to five thousand years ago. He is credited with being the inventor of agriculture and of medicine, and with being the man who dug the first well, encouraging mankind to plough the fields for the first time and transform into an agrarian community. He was meant to have compiled the first book on the subject, the *Bencaojing*.

The writer of the text on the devil's tongue in *Du Cao* is not known, but they were keen to acknowledge the debt they owed to their forebears, quoting previous works which mentioned the plant and emulating the Chinese medicinal tradition.



Lily waited until Petunia was near enough to have a clear view, then held out her palm. The flower sat there, opening and closing its petals, like some bizarre, many-lipped oyster.

Harry Potter and the Deathly Hallows

Descriptions of the 'stink lily' or, more romantically, 'dragon arum', can also be found in Elizabeth Blackwell's *A Curious Herbal*, first published in weekly instalments between 1737 and 1739. The book was a labour of love.

When she was twenty-eight, Elizabeth married Alexander Blackwell, whom she was unswervingly loyal to throughout their marriage, despite her feckless husband being nothing

but trouble. Chased out of Scotland after falsely claiming he was a doctor, Alexander set up in London as a painter. But he hadn't served a proper apprenticeship, so he was fined, couldn't pay the sum and ended up in a debtor's prison.

Elizabeth was left to look after herself and their child, but she was also determined to raise the money to free her wastrel husband. Elizabeth was extremely resourceful. She spotted a gap in the market for an up-to-date herbal reference work for apothecaries, one that included plants that were newly arriving from North and South America.

Having received art training when she was young, she set herself up in rooms next to the Chelsea Physic Garden, where London's greatest collection of medicinal botanical species was found at the time. She began to draw its plants and then took the artwork to the debtor's prison, where her jailed husband could identify and name them in several different languages. Elizabeth didn't stop there. She engraved the copper plates for printing and hand-coloured each of the printed images: this process normally took three different highly specialised craftspeople. She even engraved the text next to her illustrations. The etchings had to be done in reverse, and Elizabeth Blackwell did it beautifully. It contained 500 images of 'the most useful plants, which are now used in the practice of physick'.

The book took four years but was a triumph both artistically and as a practical apothecary's reference book. Elizabeth turned out to be an excellent businesswoman, negotiating deals with booksellers and arranging all the publicity herself. Ultimately, she paid her husband's debts and he was freed. She had achieved her goal – but prison did not reform her husband. Alexander soon racked up more debts and Elizabeth was forced to sell part of the herbal's publication rights to raise more money. Alexander then abandoned his family to seek his fortune in Sweden.

Even then, Elizabeth continued to send him his share of the herbal's royalties, though they never met again.

Alexander became embroiled in a political scandal and was executed in 1748, and Elizabeth died ten years later. So this classic of botanical illustration is also a story of doomed love.



And so the three witches and the forlorn knight ventured forth into the enchanted garden, where rare herbs, fruit and flowers grew in abundance on either side of the sunlit paths.

The Tales of Beedle the Bard

Another image of a 'stink lily' can be found in a botany book that's known as a 'magnificent failure': Robert John Thornton's *Temple of Flora*, published in London between 1799 and 1807. His image of the lily has a large dark purple leaf curling and cupping a dramatic spike, which points to a sky full of foreboding thunder clouds as a volcano throws a streak of orange lava into the grey firmament. The book contains twenty-eight highly theatrical paintings of plant life across the world. However, it's not exactly a scientific work.



The depiction of the dragon arum was typical of the melodramatic backdrops he used to depict his plants, and of the Romantic period in which he lived. The dramatic tableaux resemble more fictionalised paintings than faithful scientific reproductions.

All the images are outstanding artworks, but all of them have an element of the bizarre. There are churches, windmills and Classical temples in the background, and a depiction of a 'queen plant' even has Cupid firing an arrow

at it. Robert John Thornton came from a wealthy family and intended to go into the clergy, but he switched from the church to medicine and botany. The images represented his passion for plants, as well as his philosophical principles.

Thornton was morally conservative, had fervent religious beliefs, royalist passion and disgust for the French Revolution. He was determined to depict God's power in all things, and the essence of God within the plants of the natural world. Perhaps this is why he got sidelined by an obsession with the reproduction of plants, with the real title of the work being *The New Illustration of the Sexual System of Linnaeus*, which was then reduced to *The Temple of Flora*.

Carl Linnaeus's binomial system for naming plants was based on their reproductive organs, which was shocking for many people at the time. Linnaeus's writing was considered pretty racy, with flower leaves that 'serve as bridal beds which the creator has so gloriously arranged'. As a response, Thornton wanted *The Temple of Flora* to serve as a symbol of his belief in God's aim for conjugal fidelity within families, and that reproduction and sexual experience should only take place within marriage. In the process, he definitely got carried away with all the imagery.

Because of his insistence on trying to mix too much symbolism into his book of botany, Thornton tended to lose the meaning of the plants entirely. That's one of the reasons why it proved a commercial failure, combined with the fact that the higher taxes brought about by the war with France meant that the wealthy Englishmen of the time had less disposable income for such an expensive book. Thornton had inherited a large fortune, but the strange, beautiful book he had created was so expensive to produce that his family was left almost destitute when he died. Ironically, the 'visually magnificent failure' is now one of the world's most sought-after botany books.

'Careful, Weasley, careful!' cried Professor Sprout, as the beans burst into bloom before their very eyes.

Harry Potter and the Prisoner of Azkaban



PART 3: MANDRAKES AND GNOMES

'Mandrake, or Mandragora, is a powerful restorative,' said Hermione, sounding as usual as though she had swallowed the textbook. 'It is used to return people who have been transfigured or cursed, to their original state.'

'Excellent. Ten points to Gryffindor,' said Professor Sprout. 'The Mandrake forms an essential part of most antidotes. It is also, however, dangerous. Who can tell me why?'

Harry Potter and the Chamber of Secrets

Until Harry Potter stepped into Hogwarts, most people had forgotten about mandrake plants, but for thousands of years mandrakes were revered, thought to have mysterious properties and sought out as cures for everything from fertility problems to insanity.

Mandrakes are native to the Mediterranean region and the Himalayas, and the mandrake root can often look a lot like a human being, with little arms and legs. The root is where the magic lies.

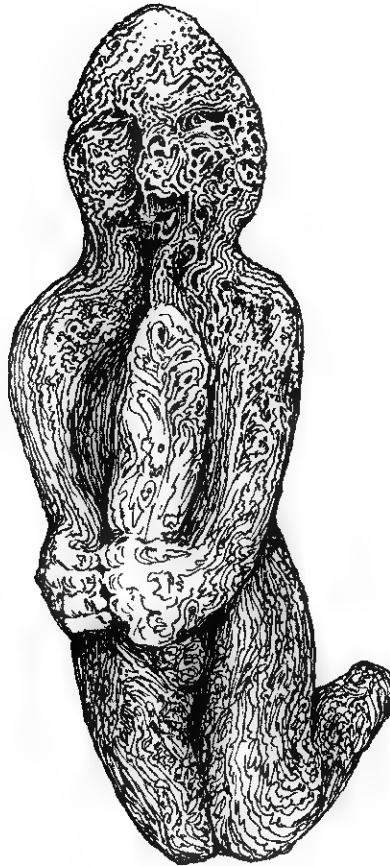


Instead of roots, a small, muddy and extremely ugly baby popped out of the earth. The leaves were growing right out of his head. He had pale green, mottled skin, and was clearly bawling at the top of his lungs.

Harry Potter and the Chamber of Secrets

One mandrake root (some three hundred years old) is kept in the collection of the Science Museum in London and it is disturbingly human-like in appearance. It seems to depict a bearded male figure kneeling and clasping a club. It is easy to understand why people believed that mandrakes screamed when they were uprooted.

A big mandrake root was highly prized. If you put it under your pillow, it was supposed to help fertility. When mixed with wine it was an anaesthetic and could also cure earache and gout. Carrying mandrake in your pocket brought you luck and gave you the power to influence others. Back in the 16th century, fake mandrakes were sold for huge prices by con artists. But mandrakes are in fact toxic: they are a member of the deadly nightshade family and contain highly poisonous compounds. They can numb pain but can also put you in a coma or lead to asphyxiation, never mind the associated hyperactivity and hallucinations.



A mandrake couple appear in a 14th-century Arabic manuscript version of a book called *De materia medica* ('On Medical Material'), originally written in Greek by Pedanius Dioscorides, a botanist and pharmacologist who worked in the Roman army, in the 1st century AD. The translation is typical of the flow of knowledge into modern Western culture from the Ancient World, particularly with Roman, Greek and Arabic influences.

Dioscorides' work is in five volumes and covers about six hundred plants, alongside some animals and minerals – he describes how you can make around a thousand medicines from these. It was widely read for 1,500 years, and the dozens of surviving copies suggest that the book was copied many times and had a practical use for a long time.

The Arabic version only covers books three and four of *De materia medica*, but the manuscript has 287 illustrations of

plants, together with blank spaces for a further 52 illustrations. One of the illustrations is of the male and female mandrake. Unlike in some other illustrations of mandrakes, the roots do not have human heads – they look like plants. But each root has four ‘branches’, which look like two arms and two legs; half a dozen green leaves sprout from their ‘heads’. Tempting as it might be to call these a ‘mandrake’ and a ‘womandrake’, that would be inaccurate, since there aren’t two sexes of mandrake; modern botanists have identified these as being different subspecies of a mandrake, both native to the Mediterranean.



Hermione’s hand narrowly missed Harry’s glasses as it shot up again.

‘The cry of the Mandrake is fatal to anyone who hears it,’ she said promptly.

‘Precisely. Take another ten points,’ said Professor Sprout. ‘Now, the Mandrakes we have here are still very young.’

Harry Potter and the Chamber of Secrets

Now it’s clear what a mandrake does, how do we go about getting one? Luckily, there’s a manuscript to tell us, with a marvellous illustration of a complicated way to harvest a mandrake, in Giovanni Cadamosto’s *Illustrated Herbal*, made in Italy or Germany in the 15th century.

As we know from Harry Potter, harvesting a mandrake is a tricky business.

'Everyone take a pair of earmuffs,' said Professor Sprout.

There was a scramble as everyone tried to seize a pair that wasn't pink and fluffy.

'When I tell you to put them on, make sure your ears are completely covered,' said Professor Sprout. 'When it is safe to remove them, I will give you the thumbs-up. Right – earmuffs on.'

Harry Potter and the Chamber of Secrets

People knew the dangers of hearing the cries of the mandrake. The illustration in Cadamosto's herbal didn't contain magic earmuffs but revealed a ritual that would fit right in to a Hogwarts Herbology lesson. It's a strange process involving a dog, an ivory stake, a rope, a horn and earth-filled ears. The earth in the ears prevented the man attempting to harvest the mandrake from being affected by its scream. The mandrake, or Mandragora, was depicted naked with long hair and a beard, with leaves springing out of his head. The rope was attached to one end of the mandrake and the other end of the rope to a dog. At the sound of the harvester's horn, the dog would be startled and bolt, dragging the mandrake out of the ground with him. The horn and earth combined should protect the ears of the man so he doesn't hear the screams of the mandrake at all.

This basic method of harvesting a mandrake was common knowledge, though some believed that demons lived in mandrake roots and that hearing their scream wouldn't just kill you, but send you straight to hell. Others thought the sound would drive you insane. In most cases it was said that

the poor old dog, forced to hear the mandrake's shrieks, died.

These harvesting stories might have been put about by professional mandrake collectors to scare off their rivals because the mandrakes were so precious. It's certainly true that myth, magic and mandrakes belong together more than with any other plant. Cold comfort, perhaps, to the patients in the Middle Ages who were administered mandrakes as an anaesthetic during amputations.

Just how the myths of the dangers associated with mandrakes persisted, when people had been pulling them up for centuries without any harm coming to them, is a mystery. But it's most likely that the hallucinogenic properties of the plants and its human shape got minds racing.



'How few wizards realise just how much we can learn from the wise little gnomes – or, to give them their correct name, the Gernumbli gardensi.'

'Ours do know a lot of excellent swear words,' said Ron, 'but I think Fred and George taught them those.'

Xenophilius Lovegood - *Harry Potter and the Deathly Hallows*

In the wizarding world, gnomes are pests that get swiftly out of hand if left unchecked. But a catalogue from the Ludwig Möller Garden Company of Germany, back in 1897, depicts

an array of gnomes that Muggles were happy to welcome into their gardens.

As early as the Renaissance, a Swiss alchemist, Paracelsus, wrote of 'diminutive figures two spans in height who did not like to mix with humans', while at the same time garishly painted metre-high figures were often placed in wealthy people's gardens. By the 18th century, gnome-like statues called 'house dwarfs' were popular.

In the 1870s, a company called Griebel started to produce gnomes based on existing local myths: legendary magical gnomes that were said to live underground during the day, guarding their treasure. Only at night would they emerge. But if they were caught in the sun, they'd turn to stone: the original garden gnome statue.

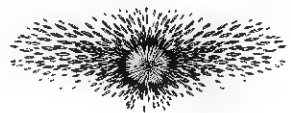


The Ludwig Möller catalogue displays the type of gnome advertised in the late 1800s: a selection of cheerful,

bearded men in red hats smoking pipes, holding garden tools, even caring for a hare. Garden gnomes spread rapidly throughout Germany before running amok in France and Italy.

They had only gone a few paces when Hermione's bandy-legged ginger cat, Crookshanks, came pelting out of the garden, bottle-brush tail held high in the air, chasing what looked like a muddy potato on legs. Harry recognised it instantly as a gnome. Barely ten inches high, its horny little feet pattered very fast as it sprinted across the yard and dived headlong into one of the Wellington boots that lay scattered around the door. Harry could hear the gnome giggling madly as Crookshanks inserted a paw into the boot, trying to reach it.

Harry Potter and the Goblet of Fire



Production of gnomes continues to this day in August Heissner's business in Gräfenroda, Germany. Heissner is often credited as the inventor of the garden gnome. A typical late-19th-century gnome from one of the workshops there would have had all the traits we now associate with them: from a beard through to lederhosen and a fishing rod. This is how Ron describes the craze for Muggles owning such garden gnomes:

'Yeah, I've seen those things they think are gnomes,' said Ron, bent double with his head in a peony bush, 'like fat little Santa Clauses with fishing rods...'

There was a violent scuffling noise, the peony bush shuddered, and Ron straightened up. 'This is a gnome,' he said grimly.

'Gerroff me! Gerroff me!' squealed the gnome.

Harry Potter and the Chamber of Secrets

The first gnomes to come to the UK were brought over by Sir Charles Isham who, in the middle of the 19th century, bought twenty-one German terracotta gnomes, made by Philip Griebel – also based in the gnome-manufacturing heartland of Gräfenroda – and took them to his large gardens in Northamptonshire.

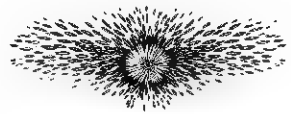
Isham was a rich eccentric who spent a lot of his time and money creating a huge alpine garden at his home. He personally created a rocky landscape of small caves and crevices. There were dramatic slopes, divided by cascades of rocks that artfully tumbled down into a chasm. And in this dramatic scene the gnomes roamed freely.

So, depending on your point of view, Sir Charles Isham is either the champion of the garden gnome and responsible for their popularity in gardens throughout the UK, or the man to blame for tacky garden statues that ruin perfectly respectable neighbourhoods. It's fair to say, gnomes divide people.

On the one hand they are incredibly popular – it's estimated that there are around five million merry little garden gnomes in the UK. On the other hand, the divisive little characters have been banned from the prestigious Chelsea Flower Show in London.

Similarly, in Germany, home of the gnome, there's a happy, thriving population of 25 million. But in the 1960s in gnome-central, Gräfenroda, gnome production was banned for a time. The East German authorities felt gnomes 'didn't fit into a socialist society'.

Who wouldn't want a little humanoid living under their bushes and looking after their house and garden? Whether in a huge garden or a tiny window box, a garden gnome is a magical creature anyone can take care of.



Down the centuries, plants were used for medicine as much as they were for myth-making and magic. Harry Potter might have forgotten to add hellebore to his Draught of Peace, but the proliferation of herbals in the 17th century and beyond ensured that the properties of the plants were understood very widely. Botanical books were often labours of love – literally so in the case of Elizabeth Blackwell's – and often of rigorous study, such as the one based on the garden of the Bishop of Eichstätt. Some depictions of plants were highly accurate and scientific, while others veered into the Romantic, only demonstrating all the more the grip they had on the creative imagination of people in the 18th and 19th centuries.

Botany is a fascination that endures – even if we don't rely on plants like we used to for medicinal purposes, they are still used the world over. But while some pesky creatures associated with herbology, like the gnomes of the wizarding world, still sit in our gardens, mandrakes had long receded in our memories before the Harry Potter stories brought them back into popular consciousness.

Herbology was, historically, an area of study for the rich but was also essential to the poor. For Harry, it is a subject

which has a bearing on some of his key decisions – and mistakes. Pomona Sprout was named for the Roman goddess of abundance, and Herbology lessons certainly prove fruitful for Harry, Ron and Hermione.



Harry Potter

A HISTORY OF MAGIC



A JOURNEY
THROUGH

Divination &
Astronomy

Harry Potter

A HISTORY OF MAGIC



A JOURNEY THROUGH
Divination & Astronomy

Illustrations by
Rohan Daniel Eason

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DIVINATION

Wanting to see into the future seems to be built into human nature. The person who knows their future can control it, and become the commander of their destiny. Some of the most prized magical objects have been tools for divination and attempting to see the future. People who are purported to have second sight have been consulted by everyone, from celebrities to shoe sellers.

If you can see the future (and, quite frankly, if you can't), you'll have seen that we are about to enter the world of prediction, fortune-telling and the Hogwarts subject of Divination. The practice of divination stretches back thousands of years, and has used natural instruments like bones and turtle shells. More recently, it had a renaissance in the front parlours of Victorian England, using everyday objects like teacups for peering into the future. Some people will use anything to see what fate and fortune holds!



PART 1: FROM RUNES TO ORACLE BONES

So you have chosen to study Divination, the most difficult of all magical arts. I must warn you at the outset that if you do not have the Sight, there is very little I will be able to teach you. Books can take you only so far in this field...'

Professor Trelawney - *Harry Potter and the Prisoner of Azkaban*

In 19th-century Siam (now Thailand), important life choices were made by consulting a divination manual called a *phrommachat*. It couldn't be read by just anyone – it had to be taken to a divination specialist called a Mor Doo to be interpreted.

Because the manuals were used so much, they were often worn out and recopied multiple times, which makes dating their use in history quite difficult. The oldest known copies are from the 18th century, but parts of the manuals were probably adopted when Buddhism was introduced in mainland Southeast Asia, about a thousand years ago. Their Hindu and Chinese elements might date them to even before that.

In a typical *phrommachat* the paper was concertinaed, and accordingly it was called a folding book. It would have been handwritten in ink and would typically have contained wonderful illustrations of courting couples, big cats and men

riding an assortment of animals: chickens, dragons and elephants. The Mor Doo was needed to interpret the multiple belief systems that were merged in the book, requiring both literacy and numeracy to do so.

For Buddhist monks leaving the order, a career as a Mor Doo was a viable way of casting yourself as a lay specialist with access to the necessary secret knowledge the job required. There are links with Hindu and Indian traditions, and the zodiac employed in the manuals is derived from Chinese tradition. Like Southeast Asia and Thailand itself, the manuals reflect a melting pot of traditions and cultures.

When would you consult your Mor Doo? For any difficult decision that had to be made, or for a major life choice, a trip to the Mor Doo was in order: questions might include whether to marry someone, start a business or build a new house, and if so where to build it. Travelling was dangerous back then, so people would even consult on taking trips. Falling ill was seen as a symptom of mental sickness as much as physical. Emotional strains on relationships could all add up to making someone ill, so the Mor Doo consulted on how to sort out issues with relationships in the community. Feelings of guilt and remorse, or any extreme emotions, were thought to make one sick. A divination specialist would tell you exactly what to do.

How the Mor Doo would interpret the book is complex. The twelve animals in the zodiac were combined with five elements: water, fire, earth, wood and metal. And multiplied together, this would give you sixty possible years. To make it more complicated, each of these sixty years was combined with a female or male avatar, or sometimes a different figure, to take it to 120 options. The idea was that you could determine someone's birth year within the range of 120 years, and if you added the reign of a king, you could hone in on which particular year was mentioned.

Since the minefield of relationships was one of the main reasons why people consulted a Mor Doo, there was even a

special relationship section. Matchmaking and checking the future compatibility of two individuals in a relationship (particularly marriage) would warrant seeing the Mor Doo. And not just for the individuals concerned, but both families, too – it was a family affair.



They hurried back down to the Gryffindor common room, which was half-empty, and joined Hermione, who was sitting alone, reading a book called Ancient Runes Made Easy.

Harry Potter and the Chamber of Secrets

Runes were an ancient Germanic writing system – the earliest runic inscriptions date from around 150 AD. As Christianity spread, the characters were replaced by the Latin alphabet. After the early 16th century, runes were no longer in practical use, but their association with magic continues. Famously, *The Tales of Beedle the Bard* – the children's book for wizards first mentioned in *Harry Potter and the Deathly Hallows* – was written in runes. The need to interpret runes (and the difficulty in doing so) means they have an air of magic and secret knowledge surrounding them. Even the root of the word 'rune' means secrecy. They have come to be very powerful symbols, associated with Odin in Norse mythology.



Some think that runes actually started as symbols of magic and developed into a writing system. They aren't curved letters like the Latin alphabet, as they were made for carving into hard surfaces, especially wood and even antlers. Antlers also have magical associations, so the combination of runes and antlers is particularly potent.

Antlers grow above the head and so connect the head with a higher power. Stags shed and regrow them, suggesting the powerful symbolism of renewal, rebirth and regeneration. Using antlers to make divination discs with runes inscribed on them would draw on the power of nature in the antler and the rune itself, allowing you to interpret the future or your situation.

The people who were engaging with runes before the Enlightenment (the period during the late 17th and early

18th century in Europe, also known as the Age of Reason) saw magic everywhere. But runes have continued to be used long after the Enlightenment, too. Runes on antler discs were still being made in the late 20th and early 21st century, and have been used by practising witches. They show that magic is still very much part of our culture today.

'So these are children's stories?' asked Hermione, bending again over the runes.

'Yeah,' said Ron uncertainly. 'I mean, that's just what you hear, you know, that all these old stories came from Beedle. I dunno what they're like in the original versions.'

'But I wonder why Dumbledore thought I should read them?'

Harry Potter and the Deathly Hallows



'I - what - dragons?' spluttered the Prime Minister.

Harry Potter and the Half-Blood Prince

For hundreds of years, farmers in Eastern China occasionally dug up bones and bits of turtle shell that had strange writing on them. Until the 19th century they just reburied them, thinking nothing of it. After that, a belief spread that

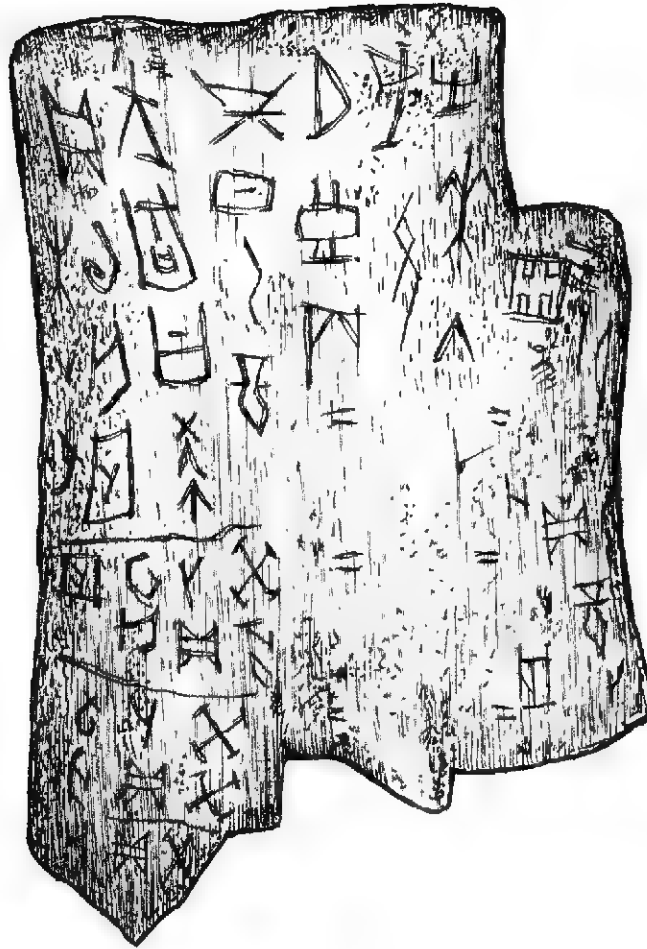
they had magical properties and were referred to as 'dragon bones', or 'oracle bones'. They were ground down and ingested as medicine.

Legend has it that Wang Yirong, the chancellor of the Imperial Academy in Beijing, was ill with malaria and was presented with some whole medicinal bones to aid his recovery. Before they got ground into powder, he saw the unusual markings and recognised them as ancient writing. This might not be true, but in 1899 Yirong was credited with recognising the true significance of the dragon bones.

They are truly ancient: the use of oracle bones predates the three major religions of China (Confucianism, Taoism and Buddhism) by almost a thousand years. The discovery of the bones was one of the greatest archaeological finds in history, because it proved there had been an advanced ancient civilisation in China that had a highly developed writing system, called the Shang.

The ancient Shang people were a cult who worshipped the spirits of their ancestors, and they used the oracle bones as a means of communicating with those spirits. These spirits were thought to be highly temperamental (like the Olympian gods), so, according to the Shang people, they weren't always benign and had to be pacified. They were fawned upon, calmed by ritualistic wines and could wreak havoc upon your fortunes if you stepped out of line.

The Shang kings communicated with their ancestors using a turtle shell or the shoulder blade of an ox. The process of preparing the bones was performed by skilled diviners. The first stage involved cleaning the bones – clearing off the flesh, which could take up to two or three weeks. If you went to the butcher today, trying this on your own might take a month, and there would still be imperfections.



The bones would then be anointed by blood (often perceived as a medium for communicating with the dead), and then turned over to have holes drilled or chiselled into them. On the other side to the holes, the bone was inscribed with information, such as the date and name of the diviner, and most importantly, a question. Communicating with the ancestors could now truly begin.

The questions usually followed a yes or no format. They could range from the profound to the mundane. One example of the latter was a king asking whether the severe toothache he had been suffering from had been caused by the displeasure of a particular ancestral god. To get an answer, it was customary that intense heat (probably in the form of a metal rod) was inserted into the different holes.

The heat would cause cracking. The cracks are the ancestors answering the question.

Looking back at the archaeological record, it isn't easy at first glance to distinguish cracks that appear naturally from those created deliberately, especially on ancient bones and brittle materials like turtle shells. But many of the oracle bones have the actual answer carved on to the front part of the surface where the question was posed, and archaeologists can see the interpretation of the crack in question.

Divination was not for common people. Diviners were esteemed members of the court who worked for the king, and later in the dynasty the king himself became the sole diviner. He was head shaman, political ruler and paramount religious leader. As the only one with access to the ancestors, his word was unquestioned.

The bones and turtle shells weren't thrown away after use, but carefully stored. The storage of the bones acted as a database, like a cloud-based management system in computing today. As much as they are artefacts of magic and divination, for archaeologists, historians and academics their significance is that they constitute the earliest evidence of an advanced writing system in ancient China. They now pore over fragments of bone and shell that were once used as medicine, and in China, there are even university courses dedicated to them.

In the case of the oracle bones kept at the British Library, rather than dating the bones to within a few centuries, experts were able to date them almost to an exact day. One of the bones documented a lunar eclipse, and an astronomer used a NASA model which allows lunar and solar eclipses to be tracked back through time. Knowing the lunar eclipse could be seen from Anyang, the capital of the Shang dynasty, the astronomer was able to date the bone to 27 December 1192 BC, when the lunar eclipse would have been visible in that location.

Bones that were created to reveal the future, are now revealing the past.



PART 2: CRYSTAL BALLS, POSSESSED MIRRORS AND A FRAGRANT WITCH

'Where is she?' Ron said.

A voice came suddenly out of the shadows, a soft, misty sort of voice.

'Welcome,' it said. 'How nice to see you in the physical world at last.'

Harry Potter and the Prisoner of Azkaban

At Hogwarts, Divination was not always held in the greatest esteem, and neither was its teacher, Professor Sybill Trelawney. Many saw Professor Trelawney as a bit of a fraud, especially Hermione. The teacher did have flashes of true clairvoyance, but they often escaped her memory.

'My name is Professor Trelawney. You may not have seen me before. I find that descending too often into the hustle and bustle of the main school clouds my Inner Eye.'

Professor Sybill Trelawney - Harry Potter and the Prisoner of Azkaban

Professor Trelawney herself might not have believed she had the ability to see into the future, but there have been real examples of people who certainly did. Over five hundred years ago in a cave on the banks of the River Nidd in Yorkshire in northern England, a fifteen-year-old girl gave birth. The mother was rumoured to have been subsequently hidden away in a nunnery or to have died in childbirth, but the child survived.

The little girl grew up around the village of Knaresborough and was taunted and mocked because of her strange ways and unconventional looks. She had a bent back, a long and crooked nose, her head was too large and her eyes too wide: the overriding impression was that she looked like a witch. Rejected by society, she retreated to the cave where she was born and studied the forest, making potions from plants and herbs. She made her living by divining the future and acquired a reputation for her extraordinary visions. She became known as Mother Shipton, the Yorkshire Prophetess.

She was said to have warned of the Spanish Armada, to have predicted the great plague in London, to have had visions of vast iron-hulled ships and to have seen the coming of the end of the world. That's the story, but there is no solid evidence of her existence when she was supposed to have lived in the 16th century, so many think she is just that: a story.

Nonetheless, Mother Shipton became hugely famous. The legends increased in number and spread widely: she could levitate; she could summon goblins; she was born with a full set of teeth and the tusks of a boar; she escaped a courtroom on a dragon; her father was actually the devil...

As well as pubs being named after her and fortune-tellers plying their trade under the gaze of her effigy, since the mid-17th century there have been more than fifty different books written about her and her prophecies. The first books appeared around the time of the English Civil War, eighty years after she was supposed to have died. *Mother Shipton*

Wonders!!! Past, Present, and to come; being the strange prophecies and uncommon predictions of the famous Mother Shipton was published in 1797, with a striking image of her with scroll in hand and finger raised as if in mid-prophecy. It was one of a large number of cheap, pamphlet-type publications that indicate she was a folk figure, and a popular one at that. The image of her with a hooked nose, pointy hat and even a wisp of a beard is typically representative of a witch.



One of the most famous publications about Mother Shipton was written by William Henry Harrison, a bookseller

from Brighton, and was released in 1881, three hundred years after she was supposed to have died. It grabbed the public's imagination, since it supposedly contained a long poem of extra prophecies that Harrison said he'd uncovered from a manuscript in the British Museum. Appearing alongside a number of things that had since come to pass – which Harrison credited as Mother Shipton prophecies – was the idea that the world was about to end. Mother Shipton's apparent success in predicting the future made this prophecy seem particularly convincing – until Harrison confessed he had made it up.

Mother Shipton lives on in the imagination, though, and books continue to get written about her today. She even has her own statue, luring tourists to Knaresborough with tales of the Yorkshire Prophetess.



Scrying is something you may not have heard of, but it is actually another way of divining the future – the word has its root in the old English word meaning 'to catch sight of'. Some scry by gazing into the flames of a fire, others the smoke. Some divine the future from peering into the clouds. The famous 16th-century French scryer Nostradamus used a simple bowl of water. Looking at reflections and interpreting the ripples of water was an early form of divination.

A self-proclaimed neo-pagan witch of the 20th century called Cecil Williamson had a witch's scrying mirror. It is about half a metre high and a quarter of a metre wide, with a frame of dark wood. At the top is the face of a witch with the requisite long, hooked nose, bushy eyebrows, wild hair and piercing eyes, all crowned with a witch's pointy hat. The sides of the mirror look like bony arms and legs.



Williamson was the founder of the Museum of Witchcraft in Boscastle, Cornwall, and his mirror was one of a quite popular design in the early 20th century. A familiar spirit (a ghost that accompanies you) is supposed to be conjured and only seen in the mirror. If you are unfortunate enough to catch a glimpse of someone standing behind you as you gaze into the mirror, it is imperative that you don't turn around in case the being persists in front of your eyes. Talk

quietly to the figure in the mirror, or close your eyes, but never look behind you!

He whirled around. His heart was pounding far more furiously than when the book had screamed – for he had seen not only himself in the mirror, but a whole crowd of people standing right behind him.

Harry Potter and the Philosopher's Stone



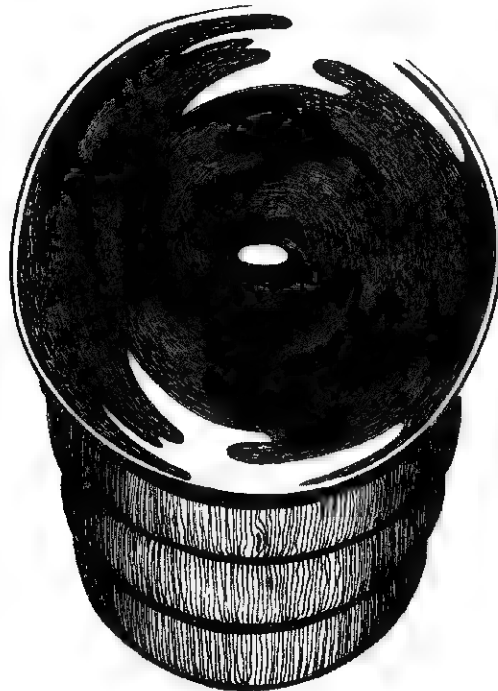
'Crystal-gazing is a particularly refined art,' she said dreamily. 'I do not expect any of you to See when first you peer into the Orb's infinite depths. We shall start by practising relaxing the conscious mind and external eyes.'

Professor Trelawney - Harry Potter and the Prisoner of Azkaban

One of the classic symbols of divination is the crystal ball. The art of divination using crystal balls – or crystallogomancy – is an ancient practice. As far back as the 1st century AD, the Roman writer Pliny the Elder described druids in Britain using crystals, and in the Renaissance, John Dee (advisor to Queen Elizabeth I) was known to be a practitioner.

The 19th century saw gazing into crystal balls reach a peak of popularity. The writer Charles Dickens was curious, but Sherlock Holmes creator Arthur Conan Doyle was absolutely convinced of the powers of crystal balls. Up and down the country, serious practitioners and parlour-room dabblers peered into crystal balls seeking out the future, fascinated by the exotic mysteries of crystallogomancy.

This curiosity continued into the 20th century for those such as Smelly Nelly, a scryer and 'witch' from Paignton in Devon, Southwest England, who used a small, black and rather battered crystal ball to take readings in the wilds of the Devon countryside.



The small crystal ball she used was a moon crystal, specifically used to catch the reflection of the moon on its surface. She then gazed into the moon's mirrored surface and got her reading that way. Smelly Nelly got her name from the very strong perfume she wore to attract the spirits, which Cecil Williamson (the neo-pagan founder of Boscastle's Museum of Witchcraft) claimed you could smell

a mile downwind. We're sure the spirits enjoyed the rich aroma upon the bare rocks of Devon's wild countryside.

As a result of the popularity of crystallo-mancy, books were produced instructing people how to use crystal balls: *A Practical Guide to Crystal Gazing* by John Melville was written at the end of the 19th century as the craze for crystal divination reached its peak. It gave advice on proper crystal-ball technique, and advised taking an infusion of the herb mugwort, or of the herb succory, during the increase of the moon to help you interpret what you saw in the ball.

This was down to some doubtful chemical and biological reasoning (and the magnetic conditions of the blood), which suggested that these herbs and techniques helped obtain the perfect powers of concentration and lucid sight needed to make you a clairvoyant. But, since most of the people peering into crystal balls were hobbyists, it was probably hard for them to see anything most of the time!



Another book by a man who knew all about crystals was *The Magic of Jewels and Charms* by George Fredrick Kunz, published in 1915. Whereas *A Practical Guide to Crystal Gazing* encouraged readers to eat herbs and keep an eye out for the full moon, *The Magic of Jewels and Charms* was a different kind of book, which discussed the legends of stones and the powers different cultures attributed to them. His writing ran the gamut of history and covered stories from all over the globe, exploring the many different cultures in which stones were endowed with a special quality – from the rain-making stones that were part of the special rites among central African tribes, to the quartz beach pebbles that Native Americans prized as talismans.

Kunz wasn't a mystic – he was a gemmologist and an expert in the folklore of stones. He wasn't so much interested in their purported magical powers as he was by the stones themselves, and his enthusiasm popularised all manner of gems and semi-precious stones.

His obsession began at a young age: Kunz was selling stones to overseas collectors by the age of fourteen. At twenty, he sold four thousand specimens to the University of Minnesota – a job lot that weighed over a ton. He was an intrepid, adventurous type: he collected were-jaguar religious objects (which depicted a supernatural entity from the Olmec civilisation from Mesoamerica) in Mexico and carried a pistol in his lap while hunting for amethysts in Russia. Foreign honours bestowed upon him included being elected as an officer of the Legion of Honour of France, a Knight of the Order of St Olav of Norway and an officer of the Rising Sun of Japan.

He landed a job at Tiffany and Co., the famous New York jewellers, and with his drive, enthusiasm and knowledge, he became the company's vice-president by the time he was twenty-three. At that time there were four precious stones that anyone cared about – diamonds, rubies, emeralds and sapphires – but Kunz introduced many semi-precious stones that were beautiful and also prized by various cultures for their features. Stones such as garnet, tourmaline and aquamarine were introduced into the marketplace by him and he can be credited with fostering public interest in them.



PART 3: PALMS, CARDS AND CUPS OF TEA

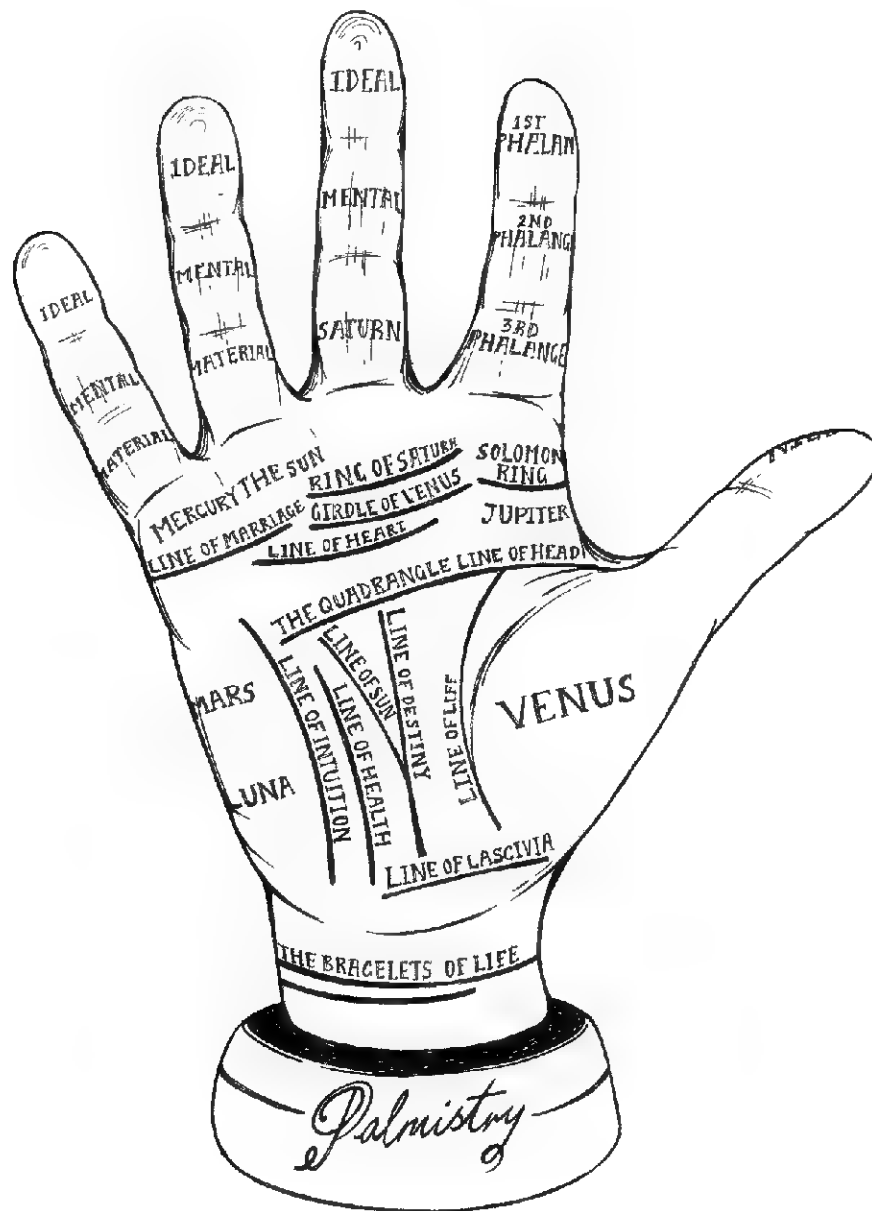
The first Divination lesson of the new term was much less fun; Professor Trelawney was now teaching them palmistry, and she lost no time in informing Harry that he had the shortest life-lines she had ever seen.

Harry Potter and the Prisoner of Azkaban

If you look at your hand, do you just see a few meaningless lines, fingers and a thumb? Or do you see the story of your life laid out before you? For thousands of years, in many different cultures, people have believed just that, as part of the art and science of palmistry.

Palmistry, or chiromancy, first became popular in Western Europe in the 12th century. There is a fortune-telling manuscript from the 14th century that was made in England, but written in Latin, which has a double-page spread of impressively detailed hands – it explains how to interpret your fortune, using the signs we know as palmistry. The lines of the hands are mapped out and each is interpreted in its own way, some of which are rather positive. There are familiar lines like the love line, but there's also a line that runs between your middle and index finger which 'signifies a bloody death'. A line that reaches the middle of a finger signifies a sudden death. Now stop looking at your hands!

There are lines to predict ailments and diseases, such as eye problems and the plague, and others to reveal personality traits, such as courage. Every hand is different and, as such, open to a multitude of interpretations. Based as it is on observation, there is something scientific about palmistry. But how realistic those observations are is completely open to question.



'Here you are,' said the manager, who had climbed a set of steps to take down a thick, black-bound book.

'Unfogging the Future. Very good guide to all your basic fortune-telling methods – palmistry, crystal balls, bird entrails...'

Harry Potter and the Prisoner of Azkaban

A good example of palmistry can be found in a book called *The Old Egyptian Fortune-Teller's Last Legacy*, published in 1775. It purported to be a collection of old Egyptian fortune-telling techniques that far preceded its 18th-century publication date. It was cheaply made, including some crude woodcut illustrations. According to this book, some of the lines of the hand denoted good fortune and prosperity, while others 'predict a woman to be a strumpet'.

The writer was British but seemed keen to exploit Ancient Egypt's mysterious reputation at the time. Alongside palmistry, the book included other unconventional divination methods, such as 'The Wheel of Fortune', which involved pricking a wheel with a pin and interpreting the symbol you picked. Then there was throwing a dice to find out who to marry. And moles on the skin were very important to the person who wrote the book – if you had a mole on your left rib, for a man it meant that he was very cruel and for a woman that she was vain and proud. Even better, a mole on the buttock was said to denote honour for a man and riches for a woman.

Almost inevitably, the book moved into the interpretation of dreams. It stated that if you dreamt of fighting with and destroying serpents, this denoted victory over your enemies. Watch out, Nagini!

Reminiscent of the emergence of criminal phrenology in the 19th century, this book had a section on the 'Art of Physiognomy', about the significance of lines on the face. The idea was that by reading wrinkles, you might find out what kind of person you were.

This book's combination of analysing moles on buttocks, reading the lines on someone's forehead and divining whether someone is a strumpet from a line in their hand seems pretty ridiculous now. But the book was popular and appealed to readers in the 18th century who didn't have a lot of disposable income and didn't own many books.

'Don't complain, this means we've finished palmistry,' Harry muttered back. 'I was getting sick of her flinching every time she looked at my hands.'

Harry Potter and the Prisoner of Azkaban

Like crystal-ball gazing, palmistry became very popular in the 19th century, leading to the creation of lots of palmistry-related items such as life-sized ceramic palmistry hands. These could be used as a teaching aid, with the various black lines and mounts on the palm and wrist explaining their significance. These china hands became popular at home with people who were trying to work out things like what the future would hold or how many children they would have.

The production of ceramic hands showed the desire to turn palmistry from a strange sideshow attraction to a scientific discipline. The reading of palms was part of the broader 19th-century trend for reading the body as a way of telling the future and making judgements of character. It coincided with the rise of phrenology and dubious studies of

the shape of criminals' heads as a way of analysing whether criminality could be identified in certain facial features and head shapes. This was all part of the idea that your future and personality were somehow written into your body.

One of the great popularisers of Victorian palmistry was William John Warner, who sometimes went by the name Count Louis le Warner Hamon, though he was even better known as 'Cheiro'. A great self-publicist, he told riveting stories of how he gained his mystic powers, such as when he travelled as a penniless young man to India and met a mystic who took him in and taught him everything he needed to know about the 'Study of the Hand'. He returned to England as a self-styled 'Missionary of Occultism' and pledged he would spend a 'period of three sevens' (twenty-one years) imparting his knowledge.

This story, as recorded in Cheiro's *Confessions: Memoirs of a Modern Seer*, might seem like melodramatic showmanship, but his client list was like a who's who of the great and good of the late 19th and early 20th centuries: Mark Twain, Mata Hari, Oscar Wilde, Thomas Edison and the Prince of Wales. Palmistry was taken seriously and Cheiro was its acclaimed celebrity.

Belief in palmistry is not limited to the past, however. In the 21st century its believers and practitioners have adopted even stranger habits, with stories of people having plastic surgery on their palms, extending their life lines and adding a marriage line, in an effort to ensure that their future is overflowing with luck and riches.



... Professor Trelawney appeared round a corner, muttering to herself as she shuffled a pack of dirty-looking playing cards, reading them as she walked.

'Two of spades: conflict,' she murmured, as she passed the place where Harry crouched, hidden. 'Seven of spades: an ill omen. Ten of spades: violence. Knave of spades: a dark young man, possibly troubled, one who dislikes the questioner -'

Harry Potter and the Half-Blood Prince

One popular method of divination is using a simple pack of cards. Playing cards have been used to tell the future for centuries. The four suits of a standard pack of cards can be used to represent the four seasons: there are fifty-two cards like the fifty-two weeks of the year, and the pips (the symbols that represent the suit) add up to 364 – the same number of days in the year – as long as you add the joker.

But tarot cards are different and are particularly special.

Tarot cards weren't used for fortune-telling until the 18th century – before then, people would use normal playing cards. Or, alternatively, John Lenthall, a stationer in Fleet Street in London (who was the predominant seller of playing cards in London during the first half of the 18th century), sold divination cards. He sold dozens of types of cards, but the most popular set was advertised as 'Fortune Telling – pleasantly unfolding the good and bad luck attending human life'.



The cards were incredibly popular and sold well for decades. They had portrayals of famous and archetypal

figures. Some were mystical like Merlin, Doctor Faustus and Nostradamus. Others, such as Herod and Clytemnestra, didn't have such a magical reputation.

Using tarot cards is a little like a 'Magic 8' ball. You begin with a question that you want to answer and then end up with a sentence, somehow generated from one of the cards, that gives you the answer. Some of them come across as just plain weird. For example, if you ask if you are well loved and the cards respond with, 'Children you'll have most for the grave,' it's difficult to know how to interpret that as an answer to that particular question!

As for a classic deck of tarot cards – the kind that feature the Magician, the Hanged Man, the Tower, the Lovers, the Fool and Death – these were used from the mid-15th century onwards, not for divination *per se* but just for playing games. Even today in southern Europe a tarot deck is still primarily used for entertainment, not divination. The opposite is true in English-speaking countries, where they have been tools of divination since around the 18th century.

There are various types of tarot cards, but they are generally more ornate than standard playing cards, with different, more complex symbols, and usually have seventy-two cards in a pack rather than fifty-two.

The pack is divided into two distinct parts. One part is often called the minor arcana – or lesser secrets – which is made up of fifty-six cards. Like a standard deck, there are four suits, but instead of Spades, Hearts, Diamonds and Clubs, tarot might have swords, wands, cups and pentacles.

Then there's the major arcana – the greater secrets. This is what tarot cards are famous for. These twenty-two cards don't have suits – each card is a symbol in its own right: the Empress, the Lovers, the Chariot, Strength, the Hermit, Justice or the Tower.

In more elaborate, hand-made packs of cards from the mid-18th century, each card might have been an impressive artwork in its own right. They would have been hand-

coloured and made of cardboard on one side, with a similarly detailed design on the back. The designs for the major cards were more intricate than the designs for the minor cards and were aimed at an expert reader to tell the story of someone's future life. The deck was to be shuffled and laid out.

How the cards played out and were interpreted depended on how they were chosen from the deck and whether they were facing you or the tarot reader. If they were facing you, it meant they were face up, which was good. If they faced the tarot reader, that meant they were face down, which was not as good. Certain cards were said to speak to major ideas and themes in your life, and the smaller cards to specific times and events.

After all this hard-to-believe palmistry, searching for moles in intimate areas and avoiding the grim reaper in a tarot reading, you might fancy a nice cup of tea. And there are books just for that, too...



The shelves running around the circular walls were crammed with dusty-looking feathers, stubs of candles, many packs of tattered playing cards, countless silvery crystal balls and a huge array of teacups.

Harry Potter and the Prisoner of Azkaban

It was only in the 20th century that the teabag was created – before then, tea leaves were loose, and tasseomancers believed they could see the future in the used leaves in the

bottom of a teacup. In cultures without tea, people have had to be more inventive. In the coffee-drinking cultures of Greece or Turkey, diviners studied leftover coffee grinds. Before tea, the curious could also find meaning through molybdomancy (molten metal), carromancy (hot wax) or haruspicy (animal entrails).

When it was initially imported from China to Europe, tea was the preserve of the very rich, but as trade routes grew and tea was cultivated in new countries, prices lowered. This brought tea leaves, and the art of tasseomancy, to the masses. *Tea-Cup Reading and the Art of Fortune-Telling by Tea-Leaves*, by a Highland Seer, was published in 1920, when reading tea leaves was an established popular pastime.

The book was clearly very popular, because there were multiple versions published under its mysterious author name. As well as very detailed descriptions of how to read tea leaves, there were illustrations of sample cups, including some pretty indistinguishable black lumps shown in the middle of them. For example, if a leaf ended up near the handle, it suggested that the prediction was going to happen sooner, rather than later. It also advised that owls were evil omens and to avoid rats running in front of you for similar reasons. Reading tea leaves was so popular that people started hosting tea-leaf reading parties, and big ceramics manufacturers even started to make fortune-telling teacups just for that purpose.



When Harry and Ron had had their teacups filled, they went back to their table and tried to drink the scalding

'My turn...' Ron peered into Harry's teacup, his forehead wrinkled with effort. 'There's a blob a bit like a bowler hat,' he said. 'Maybe you're going to work for the Ministry of Magic...'

Harry Potter and the Prisoner of Azkaban

If the Highland Seer didn't work for you, or the leaves weren't landing on the right symbols in your specialist teacup, then you could get serious with *How to Read the Future with Tea Leaves*, published in the 1920s and claiming to be translated from Chinese.

The book told an ancient story of a Chinese princess who rejected star-gazing and made amazing predictions with the newly popular beverage, tea. It was 229 BC and a student had apparently suggested she might like to try a new technique of fortune-telling – which worked so well that she raised him to the status of a mandarin. The thin volume was another handy guide to decrypting a range of shapes formed by leaves in the bottom of the user's cup, many of which supposedly resembled Chinese characters. A lot of the meanings were either bizarrely specific (signifying that you'd be interested in the navy) or incredibly vague (you'll meet an old friend).

The tea-leaf formations for meeting a stranger or making an enemy were almost impossible to distinguish from each other, but maybe these two events could be closely aligned anyway! There was also a cluster of leaves to symbolise that you would be married three times, but no symbol for any other number of times. Well, it has been said that three *is* the magic number.



In stark contrast to reading tea leaves, another route to predicting your future was to consult a fortune-telling doll. These often resembled typical 19th-century Romany fortune-tellers. Dressed in a lace blouse and pleated dress, these dolls were made in the early 19th century and were called 'peg wooden dolls'. They were very common and nearly all made in one valley in Italy called Val Gardena. The Alpine valley had been a woodworking centre since the 17th century, producing crucifixes, frames, genre sculptures and – in the winter – toys, which were distributed to the UK and US, and across Europe.

The simple, cheap, naked dolls could be modified in lots of ways, and Queen Victoria herself had a collection of 132, dressed as famous opera singers or dancers. It was a process of customising the doll – and the clothing reflected the styles of the day. On a fortune-telling doll, the fan-pleated peasant-style skirt was made of sheets of shaped paper that were folded like an accordion. On each of the fifty or so pieces someone's fortune was written, but the future could not be revealed until the paper was torn from the skirt!



Even though they were dolls, they weren't created as playthings for a child's bedroom, but as a centrepiece at social events where guests and friends could rip off a strip from the skirt and read their fate. Plans for modifying fortune-telling dolls were in newspapers and books, and they wouldn't just suggest the design of the clothes; they would also advise on the type of social event the dolls could

appear at. One suggestion was to use them at a charity bazaar, where a small fee could be paid to pluck at the dress, or – into the 20th century – at occasions like engagement parties.

At the same time, there were suggestions published as to what fortunes to include on the strips of paper. Some supposedly came from a surprising source: Napoleon Bonaparte. Napoleon is said to have consulted *The Oraculum* or 'The Dream Book' on a daily basis after he discovered it while on an expedition in Egypt in 1801. It is said that he found it in a sarcophagus, in which a mummy was holding the book clasped to its chest. Napoleon had a scholar translate it from the hieroglyphics and it was then translated into English in the 1820s. It was republished in various versions throughout the 19th century in English, but whether Napoleon discovered it, and whether it came from a sarcophagus, no one is really sure.

Still, Napoleon's *Oraculum* might have told you that 'The luck that is ordained for you will be coveted by others', or 'Beware of friends who are false and deceitful'. Wherever the advice came from, it was clearly popular, as it's hard to find many examples of doll skirts that have not been torn to shreds. An intact skirt must have held a compelling plethora of fortunes.



Divination is treated with a fair amount of scepticism by the pupils in Professor Sybill Trelawney's class, but premonitions of the future are important to the events of the Harry Potter stories. Fortune-telling really found its audience in the 19th century, when crystal balls, reading tea leaves and tarot cards became hugely popular. This was driven by the

parlour-game enthusiasms of Victorian high society, as much as genuine superstition.

But the discovery of the Chinese oracle bones revealed just how ancient a pursuit fortune-telling was, as well as how seriously it was taken by the culture of the Shang. The shamans who were empowered to tell fortunes were highly revered, as were the Thai Mor Doos. In northern climes, runes encoded the mysteries of the past, present and future into a unique writing system.

The antics of 20th-century witches like Smelly Nelly show that the practice of divination is not confined to previous centuries; in tarot cards especially, it is still thriving in certain corners of the world, even today.



ASTRONOMY

Time to turn our gaze to the stars. The study of the stars has long been undertaken on earth, for as long as we could tilt our heads upwards, but the people looking up at them haven't always seen them in the same way. They have arranged stars into different shapes and invented different meanings for them depending on their culture and time in history. And in the Harry Potter universe, too, there are key characters with strong connections to the science of astronomy.



PART 1: FROM A STAR CHART TO A DOG STAR

They had to study the night skies through their telescopes every Wednesday at midnight and learn the names of different stars and the movements of the planets.

Harry Potter and the Philosopher's Stone

At the edge of the Gobi Desert in Northwest China, near a town called Dunhuang, there is a complex of nearly five hundred caves honeycombing across a cliff face. These once teemed with Buddhist monks, but by the end of the 19th century they had been abandoned for generations and fallen into ruin.

In the late 1800s, an itinerant Daoist monk, Wang Yuanlu, decided to settle there. He appointed himself guardian of the caves and set about preserving and restoring them. One day, he discovered a secret door. What he found behind it has been described as one of the world's greatest archaeological discoveries – the equivalent of stumbling upon Tutankhamun's tomb or tripping over the Dead Sea Scrolls.

The door opened to reveal a hidden room that had been sealed for nearly a thousand years. Inside it was stacked an astonishing treasure trove of information on the culture, religions, linguistics and science of another age – found in tens of thousands of manuscripts, printed documents, paintings and drawings, stacked floor to ceiling. In 1907, a

Hungarian-British archaeologist called Aurel Stein also entered the cave after searching for artefacts on the southern Silk Road.

Among the astonishing hoard was an extraordinary manuscript known as the Dunhuang Star Atlas – the earliest known atlas of the night sky. It is a tremendously advanced astrological work made around 700 AD, about the same time as Europe was undergoing its conversion to Christianity. The manuscript was just short of the length of a full-sized bed and 9½ inches wide, roughly the length of Professor McGonagall's wand.

It is a miracle the star chart survived. Painted in handscroll form, it was read from right to left and unfolded one scene and panel at a time. It was supposed to be studied in an intimate setting by only a few people, but would have been part of a much longer scroll made up of thirteen panels designed to be viewed by multiple people.

The first part of the scroll was about aeromancy, which is divination by clouds. The star map was the second part and showed the Chinese night sky in twelve charts. The final chart was of the north polar region. The map was incredibly detailed. There were 1,345 stars depicted and over 250 of them were named, with explanatory text. It was detailed, and also extremely accurate: modern analysis has shown that the star positions in the hand-drawn atlas are accurate to within a few degrees. At the end of the chart was a representation of a bowman in traditional clothes who is firing an arrow – the God of Thunder, or *Dianshen* in Chinese.

The 1,300-plus stars are represented in either black, red or white and grouped into constellations. Most of these constellations were named, although they have different names from the Western tradition, such as *Laoren* – 'the old man' in Chinese (known today as the Carina constellation in the West). By contrast, the constellation of Leo never existed because lions were not known in China; instead,

constellations named after warriors, palaces and chariots populated the night skies.

The star chart is not only a very advanced scientific document that holds up well today; it was also used for divination: one could look up into the skies and interpret the spirit world. This practice was so highly prized that the maps were protected state documents – because understanding the stars meant understanding the world.

The emperor at the imperial court would have been surrounded by astronomers recording the nightly celestial movements. Once documented, predictions would have been made from the astronomical notations. For example, a solar eclipse was interpreted as meaning there was a risk of a coup. There were astrological predictions for the descriptions of the twelve divisions of the Chinese year.

Since it portrays a culture of acute scientific sophistication, and provides insights into the beliefs of the Chinese imperial court of over a thousand years ago, the big question remains: why was it sealed up in a cave in the Gobi Desert?

There is a theory that the rough appearance and handwriting of the document means it was a copy of the original. Even so, the reason why it was stashed in the Gobi Desert is a mystery that sadly remains unsolved.



Though created thousands of miles away and several centuries later, an Anglo-Saxon miscellany made in England around the time of the Norman Conquest of 1066 still featured astronomy heavily. A team of people – who remain uncredited for their phenomenal illustrations – painted each picture of the constellations onto the page first and then inscribed the text carefully around it later.

The book has a section on astronomy, focusing on a constellation that's an old Harry Potter favourite – Sagittarius, the centaur.

And into the clearing came – was it a man, or a horse? To the waist, a man, with red hair and beard, but below that was a horse's gleaming chestnut body with a long, reddish tail.

Harry Potter and the Philosopher's Stone

Sagittarius is rendered with a series of orange-red dots or orbs on the parchment in the shape of a constellation; these were used as the outline of the image and then drawn around to create the shape of a handsome-looking centaur. In this well-preserved image, the centaur is wearing a blue top and has a magnificent cloak flowing from his shoulders. His taut bow and arrow, depicted in rich blues and oranges, is aimed at a goat-like fish, otherwise known as Capricorn, which is leaping off the page, trying to escape.

The reason why the centaur is clothed rather than bare-chested is because the Anglo-Saxons liked to draw people in the costumes of their own day. So in this case they reproduced Anglo-Saxon dress and hairstyles, but with added horse hooves and tail.

'I know that you have learned the names of the planets and their moons in Astronomy,' said Firenze's calm voice, 'and that you have mapped the stars' progress through the heavens. Centaurs have unravelled the mysteries of these movements over centuries. Our

findings teach us that the future may be glimpsed in the sky above us –'

Harry Potter and the Order of the Phoenix



... Harry saw something that distracted him completely: the silhouette of an enormous shaggy black dog, clearly imprinted against the sky, motionless in the topmost, empty row of seats.

Harry Potter and the Prisoner of Azkaban

Those humid, sweltering days of the northern-hemisphere summer, when it's too hot to do anything, are sometimes called 'dog days'. They are dog days because they are associated with the Dog Star, which rises before the sun in the hottest part of the summer. In ancient Roman and Greek times, these days became associated not just with stifling heat but with thunderstorms, lethargy, bad luck... and mad dogs.

The star is better known as Sirius, which is where we get the name of Sirius Black, Harry's beloved godfather, an Animagus who can turn into a big black dog. Sirius is derived from the Greek *seirios aster*, which means 'scorching star', part of the constellation Canis Major, or 'Great Dog'.



The constellation features in a wonderful astronomical treatise produced at a Benedictine Abbey in Peterborough in England in the 12th century. There were several constellations in the book, all described and accompanied by pen drawings either of humans or animals. They included the Hare, the Eagle, the Swan, the Centaur and Canis Major with the star of Sirius at the top of the great dog's head.

All the figures, including the dog, were filled with poems in Latin relating to the story of the figure and to the interpretation of the night sky. The writing was based on quotations from *Astronomica*, a set of astronomical poems written by Roman writer Hyginus around the time of the birth of Christ. We don't just see stars and constellations, but a wealth of myths and legends.

Sirius was said to be the dog of the giant huntsman Orion and was even given a name-check by Homer in *The Iliad*.

According to Hyginus, Orion came to be in the heavens because Diana, the goddess of hunting, got tricked by her twin brother Apollo into firing an arrow and killing Orion. Overcome by grief, she recovered his body from the underworld and placed him among the stars. It's fascinating how a group of stars, millions of light years away, have been grouped to form a particular constellation, according to different systems depending on whether the astronomer lived in China, England or elsewhere. Sirius in particular has a large mythology built around it.

For one brief moment, the great black dog reared on to its hind legs and placed its front paws on Harry's shoulders, but Mrs Weasley shoved Harry away towards the train door, hissing, 'For heaven's sake, act more like a dog, Sirius!'

Harry Potter and the Order of the Phoenix



Astronomy has a clear influence on some of the characters we encounter in the Harry Potter books. In a handwritten note which was made as J.K. Rowling was writing *Philosopher's Stone*, the Professor of Astronomy is recorded as 'Aurelia Sinistra', which then morphed into 'Aurora Sinistra'. 'Aurora' means 'the dawn' and can also refer to the natural phenomenon that occurs near the magnetic poles, creating startling displays of light. 'Sinistra', as well as meaning 'left-hand side', is also the name of a star in the

constellation of Ophiuchus, better known as the Serpent Bearer.

As well as Sirius, the Black family has other names of astronomical derivation, including Bellatrix (meaning 'female warrior'), which is a star in the constellation Orion. The other members of the Black family – Pollux, Cygnus, Orion, Alaphard, Regulus, Arcturus – all relate to stars in the night sky. And then there is Draco – a constellation in the form of a dragon that snakes around the stars like a Slytherin serpent.

But names in the wizarding world don't just come from the stars; many of the names of people Harry meets have interesting backstories. J.K. Rowling wrote a note by hand listing the subjects studied at Hogwarts and some ideas for the names of the teachers. It is difficult to date, but it was from around the time of writing *Philosopher's Stone*, and she was clearly already thinking that the Defence Against the Dark Arts teacher would change every year, as she has made a list of different names with the year alongside. Some we know, like Quirrell, Lockhart and Lupin, but others we have never met, like Enid Pettigrew, Oakden Hernshaw and Mylor Silvanus. Of course, Enid Pettigrew shares a second name with Peter Pettigrew, but Enid, Oakden and Mylor never saw the light of day in the published books.



Enid Pettigrew

Quirinus Quirrell (1)
Gilderoy Lockhart (2), ~~(6)~~, ~~(7)~~
Remus Lupin (3), (7) Sinistra
Enid Pettigrew (4), (6), (7)
Oakden Hershaw (5)

SUBJECTS 3rd year

core subjects { Potions
Transfiguration
Charms
Defence Against the Dark Arts
History of Magic
Astronomy
Herbology

Divination → Harry & Ron
Study of Ancient Runes → Hermione
Arithmancy → Hermione
Care of Magical Creatures → Harry & Ron
Muggle Studies → Hermione

Divination: Enid Pettigrew

Transfiguration	Professor Minerva McGonagall
Charms	Filina Flitwick
Potions	Severus Snape
Defence Against the Dark Arts	Remus Lupin
History of Magic	Cuthbert Binns
Astronomy	Aurelia Sinistra
Herbology	Pomona Sprout
Divination	1
Care of Magical Creatures	

~~Enid Pettigrew~~

Lists of the Hogwarts subjects and teachers by J.K. Rowling

Transfiguration	♀	Prof. Minerva McGonagall
Charms	♂	Prof. Filius Flitwick
Potions	♂	Prof. Severus Snape
Herbology	♀	Prof. Pomona Sprout
D.A.D.A.	♂	Prof. Remus Lupin
Astronomy	♀	Prof. Aurora Sinistra
History of Magic	♂	Prof. Gilderoy Lockhart
Divination	♂	Prof. M Merope etc
Study of Ancient Runes	♀	Prof. Bathsheda Babbling
Arithmancy	♀	Prof. Septima Vector
Care of Magical Creatures	♂	Professor Rufus Hagrid
Muggle Studies	♀	Prof.

Digit
Pi
Vector

Septima
Vector

Fata
The fates
re fines
1/2

Hippogriffs

Stormswift
Hothead
Fleeting

Gibberish
Gobbledygook
also checks
original language Greek etc

Mylor Silvanus

Rosmerta "good purveyor"
village woman?

- 1) Quirrell
- 2) Lockhart
- 3) Lupin
- 4) Pettigrew
- 5) Mylor person. Oakden Hobday

Lists of the Hogwarts subjects and teachers by J.K. Rowling

... Harry looked upwards and saw a velvety black ceiling dotted with stars. He heard Hermione whisper, 'It's bewitched to look like the sky outside, I read about it in Hogwarts: A History.'

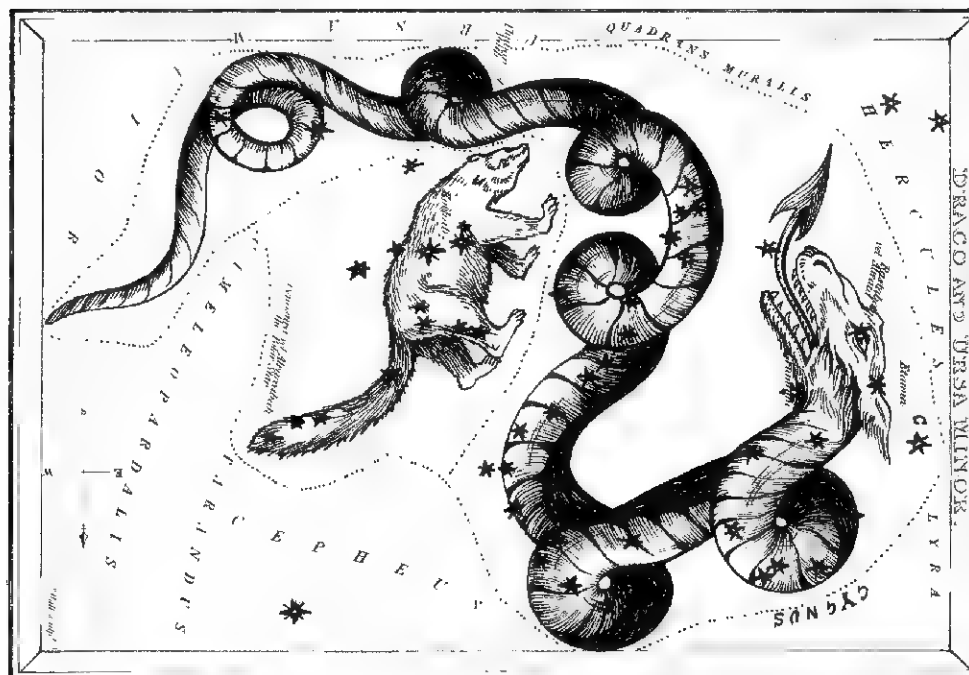
Harry Potter and the Philosopher's Stone

Just the thing for Hogwarts First Years: available in the first half of the 19th century, *Urania's Mirror; or A View of the Heavens* was a pack of playing cards, consisting of thirty-two large cards, on which were presented all the constellations visible in the British Empire. Each constellation was drawn with the figure ascribed to it by the ancients, and the stars were perforated so that their natural appearance in the night sky could be seen when held up to any source of light. The brighter the star in the sky, the bigger the hole that was pricked. They were beautiful to look at even without shining a light from behind, but the colours of the cards were incredibly strong and rich.

The original advert for the cards went out in 1824, but ten years later they were still being published – a testament to their popularity. Some of the cards showed more than one constellation. Some were the classical ones we are familiar with, such as Taurus the bull, Draco the dragon, Leo the lion and, one of our favourites, the centaur. There were unusual constellations, too, no longer in use today: a hot-air balloon, an electrostatic generator and the harp of King George III.

The cards were engraved by the map-maker Sidney Hall and hand painted, purportedly having been designed by a woman, who was credited in the advertisements simply as 'a lady'. But the name of the 'lady' was discovered in 1994 when it was found out that an assistant master at Rugby School called Reverend Richard Bloxham had designed them.

He hid his identity under the assumption that if their design was credited to a lady, more women would buy them.



The cards are named after Urania, the muse of astronomy, portrayed on the front of the box as she often was in

classical mythology: in a flowing cloak embroidered with stars, along with a celestial globe and compasses (referring to the use of the stars in navigation).

If you live amid the din of the city with its excessive artificial light, it is easy to forget that in the past the stars were very present in everyday life for most people, in all their brightness and power. Today they reveal themselves best on a clear night in the countryside.

'Never,' said Hagrid irritably, 'try an' get a straight answer out of a centaur. Ruddy star-gazers. Not interested in anythin' closer'n the moon.'

Harry Potter and the Philosopher's Stone



PART 2: AN ASTROLABE, AN ORRERY AND A CELESTIAL GLOBE

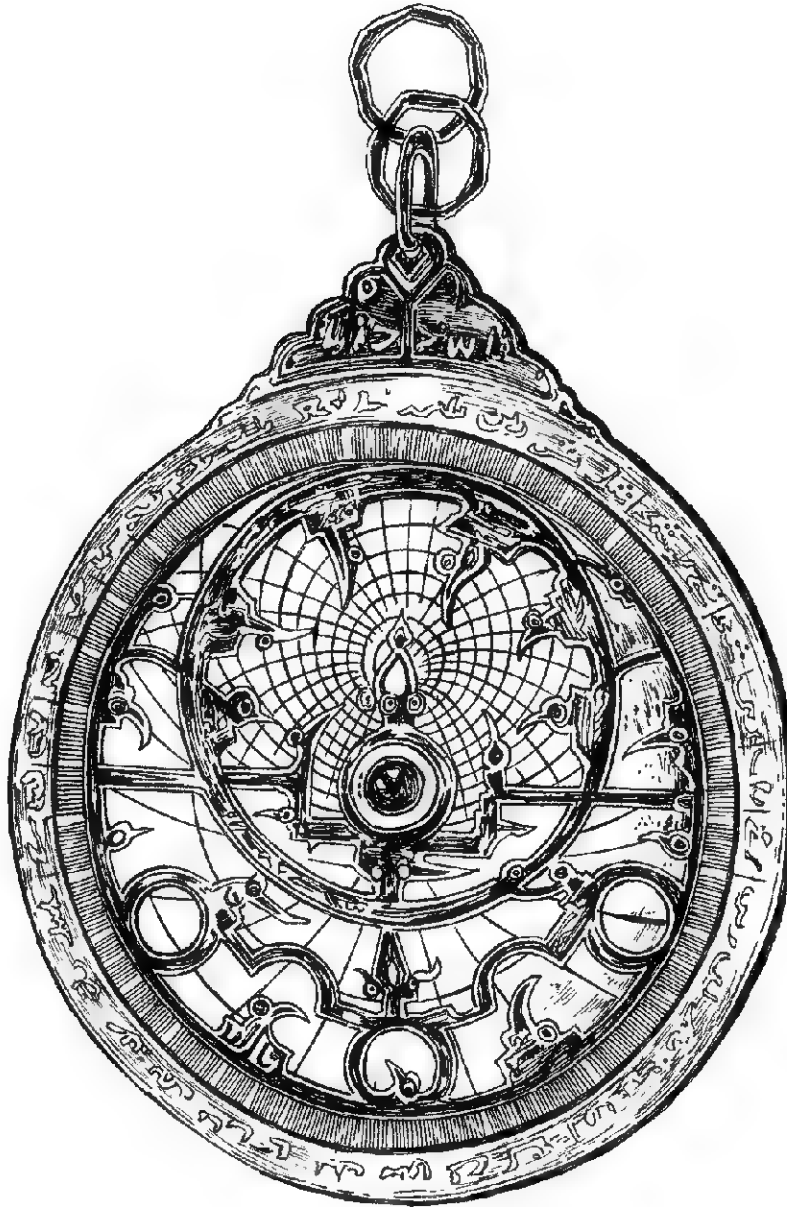
Astronomy can be studied by looking up to the heavens, but it can also be achieved through nifty machines, clever gadgets and even books with wheels!

An astrolabe could tell the time, provide your location, even help make your horoscope, and it was small enough to slip easily into your bag. In fact, a famous 10th-century astronomer called Al Sufi wrote a detailed thesis with over 380 chapters listing 1,001 uses of an astrolabe – from working out the time of the sunrise to calculating the height of a building. It sounds like a smartphone but is actually an ingenious astronomical device that has been around for over a thousand years.

The word ‘astrolabe’ is from the Greek and means ‘star taker’. It was a tool developed in the early centuries AD, used to find the correct latitude, as well as the exact positions of stars and planets. It was a handy device if you were lost at sea. Astrolabes could be used to create two-dimensional maps of the heavens, similar to the star charts that Harry and his classmates were expected to plot in their Astronomy exams.

One exquisite example was made by Muhammad ibn Abi Bakr almost 800 years ago, and was found in modern-day Iran. The astrolabe – with its marked calibrations, symbols and intricate moving parts within it – is about six inches in diameter and could be hung around the neck or shoulder. Its three apertures include one showing the lunar phase and another showing the positions of the sun and the moon in

the zodiac. The astrolabe was generally used a lot in the Arabic world to help people find the exact location of Mecca in order to pray. Astrolabes found in the households of Europeans who had never been to sea were status symbols of scientific knowledge.



An astrolabe worked by showing how the sky looked at a specific place at a given time. The moveable components were there so one could draw the sky on the face of the

astrolabe, then mark it, so that positions in the sky were easy to find. Once set, much of the sky (both visible and invisible) was represented on the astrolabe, enabling a great many astronomical problems to be solved in a visual way. It was one of the oldest geared instruments, as well as highly complex, and it would have understandably been beyond the comprehension of Harry in his first year at Hogwarts.



By contrast, there's a book that could calculate the movement of the solar system using ingenious moving parts, only using paper. *Astronomicum Caesareum* was written by Petrus Apianus, the son of a shoemaker, born in Saxony in 1495. Apianus was a mathematician, cartographer and astronomer, and, like his previous books, this one showed his considerable talents in those fields. It was the first book to announce that a comet's tail always points away from the sun. But it was the complexity and beauty of the printing itself, made less than 100 years after printing came to the West, that made the book so celebrated.

The book contained a series of rotating paper models known as volvelles. It is almost like a pop-up book, but with a scientific application. Volvelles had been used in medieval manuscripts for astrological workings, but it was very labour intensive to cut out the different shapes, especially if there were twenty-one leaves with moving parts, as was the case with *Astronomicum Caesareum*. The movement of the discs pinned at their centre mimicked the movement of the planets. It was a massive undertaking and it's thought to have taken Apianus years to produce it.

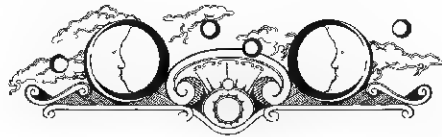


The volvelles meant that readers could do practical experiments with the mathematical ideas introduced in the book. With the aid of the stacked revolving paper discs and a long piece of thread coming from the centre of the volvelle, readers could predict the positions of planets or solve calendar problems. For example, if you had the time of someone's birth and the phase of the moon at the time, you could theoretically work out the hour someone was conceived.

Astronomicum Cæsareum looked spectacular. The volvelle that described how to determine the latitude of the moon was not just paper wheels and thread. The reader spun a stunning, brightly coloured dragon towards the different signs of the zodiac. The book was a huge success – but it wasn't cheap. It was so complex, detailed and packed with

hand-painted artworks that probably only a hundred or so were made. It's no surprise that the book was eye-wateringly expensive: several thousands of pounds in today's money.

Apianus dedicated the book to the Holy Roman Emperor, Charles V. The title translates as 'Astronomy of the Emperor'. Even the examples that he used to teach the reader how to work the volvelles related to Charles's birthday. The flattery worked: the Emperor ended up appointing Apianus as court mathematician and made him an Imperial Count Palatine. The book made his fortune and sealed his fame, giving Apianus (a shoemaker's son) huge social standing. It remains one of the greatest achievements in Renaissance printing.



... there were cabinets full of little lacquered boxes, cases full of gold-embossed books, shelves of orbs and celestial globes and many flourishing pot plants in brass containers: in fact, the room looked like a cross between a magical antique shop and a conservatory.

Harry Potter and the Half-Blood Prince

Born in Venice in 1650, Vincenzo Coronelli was a bright scholar who excelled in the study of astrology and cartography. He published 140 separate works in his lifetime, the first when he was just sixteen years old, but he is revered today as the most celebrated globe-maker of all

time. The leading society devoted to the study of globes – the Coronelli Society – is even named after him.

Coronelli was a Franciscan monk and also the cosmographer to the Serene Republic of Venice, with workshops there and in Paris. His work placed him at the centre of public life and proved a successful commercial enterprise. Venice in particular was a leading maritime state in need of this type of mapping, and it had the wealth necessary to produce such globes. Coronelli's workshop was located in his convent.

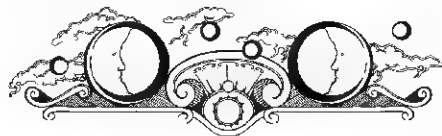


Coronelli's globe-making fame was assured after he made two massive, ornate globes for Louis XIV in the 1680s; they

were so large that they were fitted with doors and over a dozen people could fit inside them. He made smaller globes, but some were still huge, requiring six muscly men to move them; others were suitable for a table-top. He often collaborated with Jean-Baptiste Nolin, engraver to the French Crown. Nolin took Coronelli's draft maps and engraved beautiful baroque figures of animals, men and mythical creatures shown in constant dialogue as they moved across the sky. Some even contained information about the wind direction.

A celestial globe often accompanied a terrestrial globe and was a mark of intelligence and curiosity: membership of a scientific circle. But celestial globes predated terrestrial globes by many years. Before there was consensus on the shape of the earth, people looked up and thought the stars seemed to form a sphere around the earth.

Coronelli's globes tended to be astronomically accurate, with the constellations in the correct position in relation to the equinoxes for the given year. Sometimes, though, Coronelli added a few extra constellations for good measure, such as 'the Dolphin' or 'Dauphin'. This is a reference to the Dauphin of France, the dynastic title given to the heir apparent to the French throne.



She waved her wand and the lamps went out. The fire was the only source of light now. Professor Trelawney bent down, and lifted, from under her chair, a miniature model of the solar system, contained within a glass dome. It was a beautiful thing; each of the moons glimmered in place around the nine planets and the

fiery sun, all of them hanging in thin air beneath the glass.

Harry Potter and the Goblet of Fire

An orrery is a moving mechanical model of the solar system – an early version of a planetarium. Orreries were first developed in the early 18th century by Englishman George Graham, who named them after his patron, the Earl of Orrery.

Orreries held a clockwork mechanism composed of a series of arcs, which measured the celestial longitude and latitude around the earth. They depicted the earth and the moon and the way the moon goes around the earth in relation to two other planets. There was a handle for people to turn in order to get the planets to rotate around the earth in a beautiful clockwork motion. It gave people a new perspective on the earth and the solar system; a view which has otherwise only ever been seen by astronauts and satellites in modern times.



These fascinating models of the solar system were used to teach people about the motion of the moon and stars and planets around the earth.

An orrery encapsulates the move away from a pre-Enlightenment obsession with the supernatural, and things somehow beyond nature, to understanding nature (and the rules of nature) to develop something new. The stars were being observed for practical purposes rather than to harness any supernatural powers. Orreries are so beautiful in their design and operation that they have a certain magic of their own.

He was sorely tempted, too, by the perfect, moving model of the galaxy in a large glass ball, which would

have meant he never had to take another Astronomy lesson.

Harry Potter and the Prisoner of Azkaban



PART 3: HEADS IN THE STARS

Back in the 1300s, Sir John Mandeville was purported to have been an English knight who travelled in Egypt, India and China. His book *Mandeville's Travels* documented strange lands where he encountered cannibals, Amazonian tribes and people who had the heads of dogs. This was entirely fictitious, as was Mandeville, but the story was so fascinating that it was translated into many different languages and copied out repeatedly, becoming renowned throughout medieval Europe. The story is thought to have actually been written by a Frenchman called Jehan la Barbe, or a Fleming called Jan de Langhe.

The book was so popular that it is said to have been used by Christopher Columbus and to have influenced writers like Jonathan Swift, Daniel Defoe and Samuel Taylor Coleridge. One version of the Czech translation contains a fascinating illustration of astronomers standing on the peak of Mount Athos in Greece, gazing at the night sky and holding what look like astrolabes and quadrants. Below them are a different set of people, probably astrologers, holding sticks and writing magical signs in the sand in a type of script that nobody can interpret.

The astonishingly beautiful manuscript would have taken a huge amount of effort to create, using the skills of illuminators, artists and scribes before the invention of the printing press in Western Europe. The process would have taken months and months, probably even longer, but it resulted in something whose beauty is undiminished 600 years later.

The quality of illustration and portraiture contained within medieval manuscripts defies the idea that portraiture as we know it from galleries began in the 15th century. These books contain hundreds of illustrations which, taken on their own, would be regarded as great works of art – all of which have survived in extraordinarily good condition.

The walls were covered with portraits of old headmasters and headmistresses, all of whom were snoozing gently in their frames.

Harry Potter and the Chamber of Secrets



From a fictitious teller of tales to one of the world's greatest ever minds: Leonardo da Vinci. One of his surviving notebooks contains hundreds of pages of notes and working drawings, representing his various observations, relating to all kinds of subjects like engineering and hydraulics. There are also early sketches that were used as templates for later portraits and drawings.

The great inventor, scientist and artist made copious notes on everything throughout his life: underwater breathing apparatus, musical organs with mechanical voices and theories on the flight of birds – even shopping lists. Da Vinci gathered information and was trying to make sense of the world around him. What makes the notes even more interesting is that he made them in mirror handwriting, written back to front. No one knows why he chose to record

his notes in mirror writing. Some thought it was because he wanted to hide controversial views from the church, others that – because he was left-handed – writing backwards meant he wouldn't smudge his ink. No one knows for sure.

Once he'd mastered the skill, perhaps it was obvious to him that he should continue that way; private notes for his own purposes. Why would he care if they were difficult to read? Nevertheless, they give an incredible insight into the mind of one of the greatest thinkers of all time.

In medieval Europe the mainstream astronomical theory was that the sun and the moon circled the earth. With the Renaissance, many scientists and thinkers (including Leonardo) were questioning what was going on in the night sky. How big was the moon? Was its surface smooth and rough – and why did it shine?

In one of his notes, da Vinci drew a diagram and it showed the earth at the centre of the system, around which orbits the moon *and* the sun. It is understandable that, before the invention of the telescope, da Vinci would get this wrong. An accompanying illustration showed a view from above of the earth and the moon, and the moon is covered with water, a little like a convex mirror, because he believed it would reflect light, and one of the motivations for him doing the diagrams was that he was observing the reflective properties of light.

The notebooks represent a highly creative and highly scientific process: da Vinci used his artistic prowess as part of a process of learning about the solar system and the earth's position in relation to other stars and planets. It might be easy, as with other areas of the history of magic, to simply dismiss his work as 'wrong', but that overlooks how vital it is to the development of our knowledge to experiment and speculate in a scientific way – to think things through in a logical way by using our creativity.

Harry watched the cloudy sky, curves of smoke-grey and silver sliding over the face of the white moon. He felt light-headed with amazement at his discoveries.

Harry Potter and the Deathly Hallows



Another great thinker, and one of the true giants of astronomy, is Johannes Kepler, creator of the *Rudolphine Tables*. Kepler's life was dominated by the struggle between science and superstition: his patron was obsessed with alchemy, his contemporaries with astrology, and his mother was even accused of witchcraft.

Born 125 years after the birth of da Vinci, in Germany in 1571, Johannes Kepler was a student when a controversial new theory put forward by a Polish astronomer called Copernicus began to gain ground. Copernicus claimed that the earth orbited the sun, and that planets' paths were not in perfect circles, nor at constant speeds. Kepler's findings confirmed this theory and subsequently became known as Kepler's Laws.

Today, his laws not only describe planetary motion, but also determine the orbits of satellites and space stations. Kepler lived during the reign of the Holy Roman Emperor, Rudolf II, and was the astronomer at his court. Rudolf II also happened to be very interested in the occult and the supernatural.

Like other notable people dabbling in science and magic during this period, the Emperor Rudolf was on a quest to find the Philosopher's Stone, and had a private laboratory in

which to conduct experiments. His interest in astrology led him to hire the famous seer Nostradamus to prepare his horoscope – at a time when astrology and astronomy were almost the same thing: magic mixed with science.

In this mysticism-obsessed court in Prague, Kepler also met Tycho Brahe, often described as the greatest and most accurate astronomer to make observations without a telescope. It was Brahe's recording of the position of 777 of the brightest stars that formed the basis of what has become known as the *Rudolphine Tables*.

Although the star tables Brahe created were being researched for supernatural purposes, they still had a tangible scientific importance. After Brahe died in 1601, Kepler took over: the astronomical catalogue had created worldwide interest, and the tables were seen as their most important work. But writing the book was an uphill struggle...

Constantly travelling, and in the midst of the Thirty Years' War, Kepler struggled to get paid for his work: trying to get close to court at a time of great upheaval was difficult. He ended up with a fraction of what he was owed and paid for a large portion of the original printing himself. He ended up having this situation depicted in the frontispiece of the book, which has the eagle of the Holy Roman Empire at the top of the temple of Urania. Coins are dropping slowly out of its mouth, showing the patronage of the Holy Roman Empire, with poor old Kepler working alone by candlelight. The money isn't quite reaching him, but he is still working very diligently.

Getting money out of the emperor wasn't Kepler's only problem. Just as his work on the stars stood at the intersection of science and magic, his next challenge was the clash of superstition and reason. When Kepler's mother was accused of witchcraft it started a six-year ordeal for a crime which was punishable by execution. For the last fourteen months of her imprisonment she was chained to

the floor of a prison cell. With his mother accused of poisoning, paralysing a child's arm by touching it and turning herself into a cat, Kepler had to use logic and reason to win the case and free her.

In 1627, twenty years after the death of Tycho Brahe, the *Rudolphine Tables* were finally published. It was a massive achievement, containing the position of 1,005 stars, and is the most accurate star catalogue of the pre-telescope era. Kepler's extremely eventful and complicated life stands as a testament to developing a scientific method in the face of superstition.

'Lie back on the floor,' said Firenze in his calm voice, 'and observe the heavens. Here is written, for those who can see, the fortune of our races.'

Harry Potter and the Order of the Phoenix

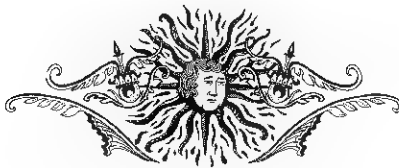


The study of the stars has fascinated people for centuries and has found its way into many beautiful records of the night sky: from the ancient Dunhuang star atlas to the celestial globes made in 17th-century Venice. Astronomy also holds a special place in the wizarding world, since it is such a rich source of inspiration and identity in Harry Potter's life at Hogwarts, and beyond.

The subject is exceptional for its development of scientific understanding through quasi-magical exploration, often binding astrology and astronomy tightly together into one

practice. The tools men and women have created to read them over the centuries – in the form of astrolabes and orreries – were beautiful products of human craftsmanship.

The books produced in service to astronomy are worthy of all our study, whether for their deployment of bespoke rotating paper craft or their beautiful illustrations fit for any national gallery. Leonardo da Vinci's handwritten astronomical notebook is a treasure trove of observation and creative thinking, and his mirror-writing as strange and alluring as Tom Riddle's diary. And, as we've seen, the names of the stars and planets themselves are present throughout the wizarding world, from teacher Aurora Sinistra to Harry's Animagus godfather himself, Sirius Black.



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Harry Potter

A HISTORY OF MAGIC

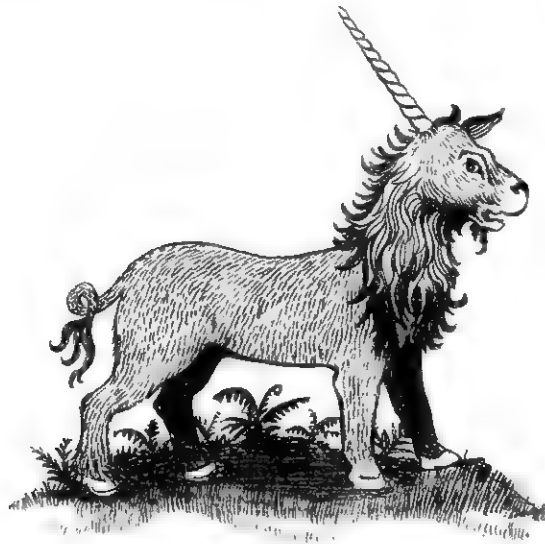


A JOURNEY
THROUGH

Care of Magical
Creatures

Harry Potter

A HISTORY OF MAGIC



A JOURNEY THROUGH

Care of
Magical Creatures

Illustrations by
Rohan Daniel Eason

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CARE OF MAGICAL CREATURES

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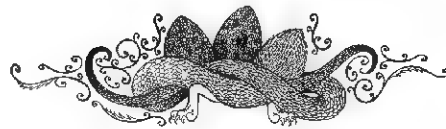
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CARE OF MAGICAL CREATURES

We live in a time when we can watch, spellbound, astonishing video footage of animals from all over the world at any time: from the depths of the ocean to mountain peaks; from the heat of the desert to the cold of the Arctic; from the midst of the rainforest to an isolated island.

However, for millennia, people could only read strange tales or hear intriguing stories of creatures they were unlikely to ever see. Even the images they saw were often painted by artists who had never laid eyes on what they were depicting.

As the world was explored, tales of amazing new animals spread, and information – backed up by emerging scientific reasoning – was shared more widely. Books were filled with wondrous creatures and ‘cabinets of curiosity’ were created – collections of strange wonders from all over the world, mixing the real and the imagined: dragons and elephants, unicorns and narwhals.

At Hogwarts, Harry and his friends were given Care of Magical Creatures lessons, which introduced them to all manner of fantastic beasts: from unpredictable Hippogriffs that demanded a fair degree of caution and respect, to – frankly – repellent and downright dangerous Blast-Ended Skrewts.

People have always been fascinated with exotic animal life and strange, powerful, clever creatures with abilities that ignite the imagination, but today it’s relatively easy to distinguish truth from myth. Not that long ago, however, it wasn’t, and people were much more willing to believe in the

existence of things of which they hadn't seen any actual evidence.



PART 1: VISIONS OF THE UNICORN

The unicorn is a beautiful beast found throughout the forests of northern Europe. It is a pure white, horned horse when fully grown, though the foals are initially golden and turn silver before achieving maturity.

Fantastic Beasts and Where to Find Them

Unicorns have been written about in natural history books and medical texts for thousands of years as though they might have been found out in the wild. Today, we have cute, cuddly toy unicorns that sneeze rainbows. The characteristics of unicorns have varied greatly down the years: there have been fierce unicorns, luck-bringing unicorns, unicorns as symbols of purity and unicorns whose body parts have magical medical properties.

They've lived in people's imaginations through stories and myths, so much so that you might just be able to believe that these wondrous beasts roamed free in some far-off exotic land. But, if these gentle, elusive woodland creatures did exist, sadly there would probably be someone who'd want to hunt them.

The blood of a unicorn will keep you alive, even if you are an inch from death, but at a terrible price. You have

slain something pure and defenceless to save yourself, and you will have but a half-life, a cursed life, from the moment the blood touches your lips.

Firenze - *Harry Potter and the Philosopher's Stone*

In the Harry Potter series killing a unicorn is an awful thing to do, and historical traditions also underlined it as a very serious crime that resulted in sullyng your soul. In the real world there are documented instances of apparent unicorn hunting. One of them appears in Ambroise Paré's *Discourse* on the unicorn, published in 1582. Paré was chief surgeon to the French crown, an innovator and early adopter of evidence-based research. The book (despite its fantastical unicorns) was actually a text questioning the falsehoods in ancient medicine. His writing had been prompted by a patient asking a sceptical Paré to prescribe unicorn horn for some complaint – the image in his book showed the killing and skinning of a 'pirassoipi', or two-horned unicorn.

It was the unicorn all right, and it was dead. Harry had never seen anything so beautiful and sad. Its long, slender legs were stuck out at odd angles where it had fallen and its mane was spread pearly-white on the dark leaves.

Harry Potter and the Philosopher's Stone

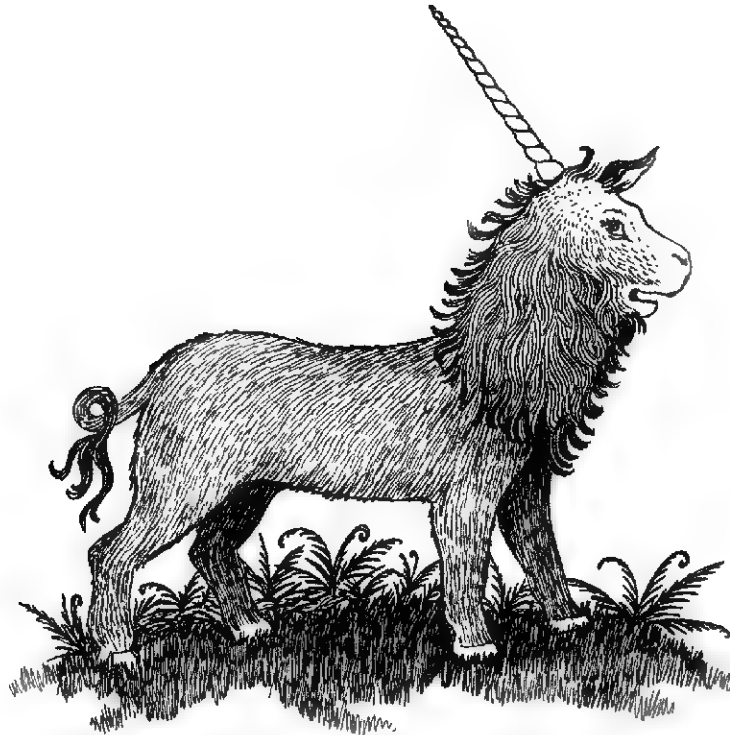


'It's not easy ter catch a unicorn, they're powerful magic creatures. I never knew one ter be hurt before.'

Hagrid - *Harry Potter and the Philosopher's Stone*

Unicorns also appeared in *On the Properties of Animals*, published in Paris in the 16th century. The book was a 'bestiary', a compendium of animals, written in Greek by a Cypriot scribe, and produced for a European audience. Bestiaries often combined animals that were real with animals that we now know to be mythical. Along with drawings and descriptions of creatures like the heron, the pelican, a wolf, a porcupine and a cuttlefish, this bestiary had a centaur with a pair of over-extended arms serving as its front legs!

The text accompanying the illustrations was a poem about the natural world composed by the Byzantine poet Manuel Philes, who lived at the turn of the 14th century. It was then copied out for the bestiary by a Cypriot called Angelos Vergekios two hundred years later, and illustrations were supplied by his daughter.



The unicorn depicted in this manuscript was not cute in any way, shape or form: it was a wild beast with a dangerous bite, the tail of a boar and the mouth of a lion. Its horn projected backwards, making it a rather useless weapon to stab anybody, unless you crept up from behind. But unicorns were also said to be extremely fast, and the method of their capture extremely complicated – if a hunter wanted to catch a unicorn, they would apparently need the assistance of a female virgin; the unicorn would be enticed to lay its head down in the virgin's lap and fall asleep, and the hunter could then sneak up on it unawares.



More doubts around the unicorn's existence were setting in by 1694. In his *Histoire générale des drogues* ('The

Compleat History of Druggs'), Pierre Pomet mentions the unicorn. Pomet was a Parisian pharmacist and chief apothecary to the Sun King himself, Louis XIV of France, and his position in the French court gave him access to enviable resources, including networks reaching around the world. These contacts provided him with valuable and unusual specimens, as well as some wonderful tales about fabulous beasts from distant shores.

His book was a practical medical manual that described an array of 17th-century medicinal ingredients and, perhaps due to the amazing descriptions and stories, it went down very well with non-medical professionals too. Who wouldn't want to read about miniature dragons that wound themselves around the legs of elephants, thrust their heads up their nostrils, put out their eyes, stung them and sucked out their blood?

But, in his chapter on the unicorn, Pomet would not confirm the animal's existence, conceding that 'we know not the real truth of the matter'. He acknowledged that what was commonly sold as unicorn horn 'is the horn of a certain fish called narwhal', a horn which was 'well used, on account of the great properties attributed to it, principally against poisons'.

There haven't been reports of unicorn sightings for a very long time, but narwhal horns certainly do exist: one particularly fine specimen can be found in the Explorer's Club in New York City. One of its earliest members was Teddy Roosevelt, the former president of the United States, himself a great explorer and known for his African safaris and adventurous spirit.



The clubhouse on the Upper East Side of Manhattan is stuffed full of trophies brought back from expeditions, and the narwhal tusk lives in the company of huge elephant tusks, a taxidermic polar bear and other extraordinary things. The clubhouse, a turn-of-the-century mansion with dark panelled rooms, even has something of Hogwarts about it.

A narwhal tusk is a miraculous thing. Twisted like barley cane and up to three metres long, it's actually not a horn,

but a tooth – and a strange one: a left canine that bursts out through the skin, leaving the rest of a narwhal’s mouth completely toothless.

Separated from the narwhal, it’s easy to see how people thought this pointed, twisted marine ivory was from a magical beast. It was almost a deliberate piece of wishful thinking, stemming from when Viking raiders brought narwhal tusks to the markets of Europe for sale. The tusks were connected in people’s minds with the stories of a magical horn that went back to ancient times, and so the legend grew.

The Vikings, and later hawkers of ‘unicorn horn’, could make a lot of money selling this magic horn, which was supposedly an antidote to all poisons. It’s said that the Vikings sold narwhal tusks for more than their weight in gold. The unicorn horn/narwhal tusk that was sold to Queen Elizabeth I of England in the latter half of the 16th century was supposed to have cost 10,000 florins, which would have bought you a decent-sized castle in that period. This behaviour fuelled a lucrative trade in narwhal tusks for hundreds of years, and it wasn’t until the era of exploration of the 18th century that it dawned on most Europeans what they had actually been trading in. Fortunately, narwhals are rarely hunted these days and their ‘unicorn horns’ stay where they belong.



PART 2: OWLS, CATS AND TOADS

Students may also bring an owl OR a cat OR a toad.

Harry Potter and the Philosopher's Stone

These are the three animals a student is allowed to bring to Hogwarts, but how did they earn such a magical reputation?

At long last, the train stopped at Hogsmeade station, and there was a great scramble to get out; owls hooted, cats miaowed, and Neville's pet toad croaked loudly from under his hat.

Harry Potter and the Prisoner of Azkaban

Conrad Gessner's *Historiae animalium* was published in Zurich between 1551 and 1558 and is seen as the book that kick-started modern zoology. Like many works of the time it uses information from old sources, such as Greek and Roman thinkers and medieval bestiaries, so inevitably it included the odd unicorn or basilisk. It was a monumental work of 4,500 pages (much more than the seven Harry Potter books combined!), but one where Gessner tried to

separate fact from fiction and accurately describe every animal in the world, including the cat.

They made their way back up the crowded street to the Magical Menagerie. As they reached it, Hermione came out, but she wasn't carrying an owl. Her arms were clamped tightly around the enormous ginger cat.

'You bought that monster?' said Ron, his mouth hanging open.

'He's gorgeous, isn't he?' said Hermione, glowing.

Harry Potter and the Prisoner of Azkaban

Gessner's depiction was of a stripy cat with staring yellow eyes, sitting upright as its tail curls around its paws. Cats at the time had a bad reputation, and even Gessner describes them as being in possession of '*ingenium calliditas*' or a 'cunning character'. Edward Topsell, the first translator of Gessner's work, noted that: 'The familiars of witches do most ordinarily appear in the shape of cats, which is an argument that the beast is dangerous to soul and body.' Elsewhere, Gessner asserted 'that men have been known to lose their strength, perspire violently, and even faint at the sight of a cat'.



Cats impart an air of mischief because, although they're usually found in a domestic setting, their independent behaviour when they go out of the house can seem uninhibited. When you lock eyes with a cat in the street, you are probably both thinking, 'What are you up to?' It's that individuality and sense of potentially getting up to no good that has historically made cats subject to such negative speculation about their character. Just ask Crookshanks about some of his unfair treatment from Ron!

Something brushed his ankles. He looked down and saw the caretaker's skeletal grey cat, Mrs Norris, slinking past him. She turned lamplike yellow eyes on him for a moment before disappearing behind a statue of Wilfred the Wistful.

Harry Potter and the Order of the Phoenix



'And you should have seen their faces when I got in here – they thought I might not be magic enough to come, you see. Great-uncle Algie was so pleased he bought me my toad.'

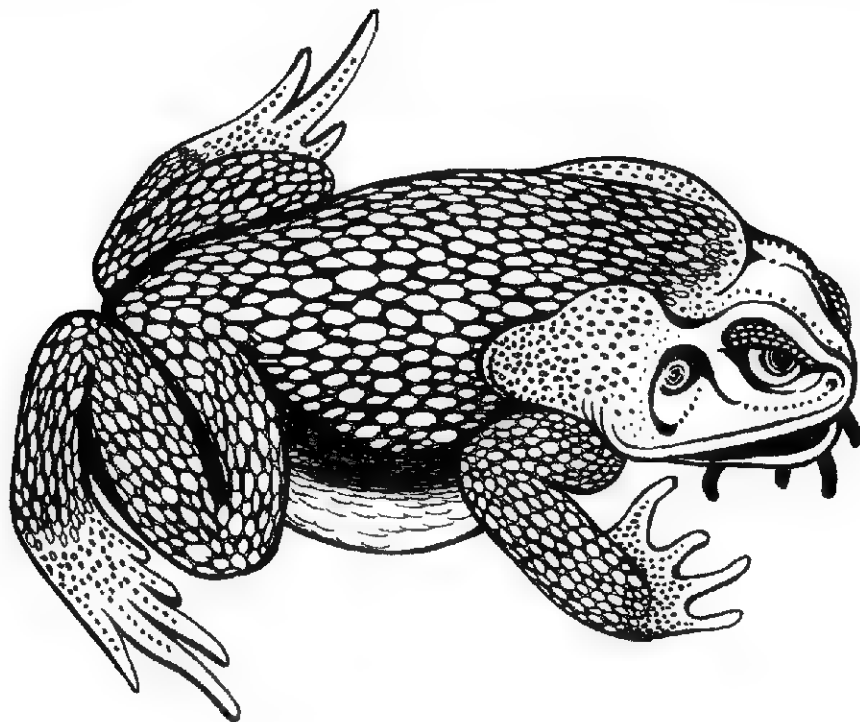
Neville Longbottom - Harry Potter and the Philosopher's Stone

Back in the day, if you were going to do magic then you'd almost definitely need a toad. Some people nailed live toads to trees to cure warts. Roman naturalist Pliny the Elder not only believed a toad could silence a noisy crowd, but that a bone in its right side could cool boiling water, while a bone in its left side could repel the attack of a dog. Along with cats, toads were often associated with witches, either as a familiar (supernatural entities that would assist witches) or

as an ingredient in an enchanted brew. But, actually, toads are more likely to be dangerous than magical.

When the German biologist Johann Baptist von Spix visited Brazil in the early 19th century, he compiled a book about its animals, including the cane or giant marine toad (*Bufo* *agua*), called *Animalia nova, sive species novæ testudinum et ranarum, quas in itinere per Brasiliam annis 1817-20* (published in Munich in 1824). Spix explored regions of Brazil previously unknown to Europeans. He suffered from all sorts of diseases and almost died of thirst along the way, but he ultimately returned home with hundreds of specimens – enough to found a museum.

His book showed the cane toad as having a large, green, slightly warty body and distinctive unwebbed hands and feet. It's been around for millions of years and is highly toxic, the poison in its skin proving potentially fatal to attackers. The natural habitat of the cane toad is South and Central America, but it's been introduced to new countries to eradicate pests, particularly those found on sugarcane.



This project hasn't always been a resounding success, though. About 3,000 cane toads were released into the sugarcane plantations of Australia in 1935. Unfortunately, the cane toads didn't fancy eating the grey-backed cane beetles that were meant to be dinner – but they went for nearly everything else. As they have no predators Down Under, there are now several million toxic cane toads spreading all over the country and destroying native species.

Then there's the hazardous and potentially fatal practice that's developed among humans of licking cane toads for their hallucinogenic properties. Definitely not something to try.

Dangerous, hallucinogenic and with a magical reputation – if you're a witch or a wizard, a toad is apparently the perfect pet. Although at Hogwarts, Neville's pet toad Trevor seemed much more benign!



Twenty minutes later, they left Eeylops Owl Emporium, which had been dark and full of rustling and flickering, jewel-bright eyes. Harry now carried a large cage which held a beautiful snowy owl, fast asleep with her head under her wing.

Harry Potter and the Philosopher's Stone

Owls swoop through every Harry Potter story. In the wizarding world, wherever you are, whatever you send and whoever you send it to, you need to use an owl to make sure it is delivered.

Two snowy owls, just like Hedwig, can be found in John James Audubon's *The Birds of America*. It was published in sections between 1827 and 1838, bound together in multiple volumes, and depicted every bird native to North America. It has been described as the most beautiful illustrated bird book ever.

The book was as big as Audubon's ambition. He decided to paint every bird life-size, with the result that the pages of the book were 'double elephant' folio size: about a metre tall. The biggest bird, a whooping crane, had to be illustrated bending down to eat a lizard so that it would fit. There are over 400 prints inside and a finished copy of the book is so heavy it requires several people to lift it up.

Audubon's two majestic snowy owls are shown on a tree in the moonlight. The larger female has dark spots on her white plumage, and the smaller male is a purer white with less variegated feathers. Even though Hedwig is female in the Harry Potter books, the movies used a male snowy owl to play the part since his completely white feathers looked great on camera and his lighter weight made it easier for the then-child actors to carry him.

John James Audubon had huge success from the production and sale of his ambitious illustrated books, but his early life was much more turbulent. Born in Haiti, he moved to France as a child but then went from France to Pennsylvania to avoid the turmoil following the French Revolution. He was meant to run his father's estate, but he flunked out of naval school due to chronic seasickness and instead fell in love with birds. He opened a string of general stores, built a great steam mill, rafted the Ohio and the Mississippi rivers and hunted for pay. But throughout, he always went back to sketching birds.

In 1819, when he was in his mid-thirties, he declared that he was going to paint every bird in North America. Obtaining the specimens, painting the birds and publishing the book then took him most of his working life.

He obtained the specimens in different ways: he lured a house wren with spiders and kept it alive as a pet. And often Audubon hunted birds with special soft shot so as not to damage their plumage. He'd then position the bird as he'd remembered seeing it in the wild and fasten it in place with wires. The aim was to create a realism that had never been seen before. Unlike other ornithological artists of the time, he not only posed the birds in a life-like way, but also in their natural habitat, with the food they ate and the trees they nested on.

Audubon also dissected the birds, measuring their insides and describing the contents of their stomachs. He even ate the birds, and tried not to waste anything on the frontier where he was searching for them: one woodpecker purportedly tasted like ants.

This passion and drive for authenticity was one thing, but it wouldn't have mattered if Audubon wasn't also a tremendously gifted self-taught artist – and a talented salesperson. Finding the birds, then making the most high-quality engravings possible, was incredibly expensive.

He sold *The Birds of America* by subscription, with his subscribers receiving five images every two to six weeks, varying in size (from small to huge) and not necessarily being delivered according to species. That meant the parcels were always a surprise, and made for a brilliant scheme of getting the series out there.

Though he was born in Haiti and raised in France, Audubon also gave himself the name 'the American Woodsman' and toured Europe playing up to the myth of the frontiersman. He danced and promoted himself as a kind of New World rock star in order to get the project off the ground, even going so far as to dress in buckskins (clothing

made from the hide of a deer) for the benefit of English audiences and putting bear grease in his hair in France.

His magnetic personality and vision, aligned with an almost transcendent sense of purpose, drove him to astonishing success. The combination of his subscription scheme and his promotional efforts meant that he garnered the equivalent of millions of dollars in today's money.



'Safe flight, then,' said Harry and he carried her to one of the windows; with a moment's pressure on his arm, Hedwig took off into the blindingly bright sky.

Harry Potter and the Order of the Phoenix

Unlike those of most birds, owls' eyes aren't at the side of their heads, but facing front – just like people. If you look at an owl, it will look right back, which might explain the mysterious connection that some people (and wizards) have with owls.

The owls that used to be on the roof of the old New York Herald building in Manhattan are four feet tall and weigh over 100 kilogrammes a piece. They were commissioned by James Gordon Bennett Jr, heir to the *New York Herald* newspaper fortune, of whom stories of extravagant behaviour were legion. He had a 301-foot yacht ready to sail at his whim – it not only had a permanent crew of 100, but also its own padded stall for a cow, so Bennett could always

have fresh cream. It's often said that he rode his carriage about the streets of New York at break-neck speeds in the middle of the night completely naked. He flew an aeroplane through an empty barn. Most famously, newspapers were scandalised when there were reports of him ending his engagement to a socialite by turning up drunk at a party and urinating in the fireplace. Some said it was in the grand piano.

In 1867, this loose cannon took over the running of the *New York Herald* from his father. He proved to be a savvy owner. The paper had a huge circulation, gained through his philosophy that the function of a newspaper 'is not to instruct but to startle'. Accordingly, he was the architect of several publicity stunts, such as splashing the front page with an entirely made-up story of wild animals escaping Central Park Zoo. Horrified New Yorkers read of 'a Shocking Sabbath Carnival of Death'.

And alongside his predilection to shock, James Gordon Bennett Jr was also obsessed with owls. He had depictions of them on his cufflinks, in his office, aboard his yacht – and on the front of his newspaper.

When he decided to move the newspaper's headquarters further north in the city, he told the architects he wanted a classic Italian-style building, which is what they delivered – but Bennett wasn't happy with the owl count...

The roof was supposed to be decorated with neo-classical statues of various gods, but, at Bennett's instruction, these were cut out of the architectural renderings and replaced by owls. There ended up being twenty-six owls dotted along the building's roofline alongside a statue of Minerva at the front of the building, above the bell of the clock. Minerva, as the goddess of wisdom, was often symbolised by the image of an owl. When the clock struck, the eyes of the owls either side of Minerva flashed green.



Bennett's obsession reached its apex in 1906 when he asked his architect to design a 200-foot-high sarcophagus in the shape of an owl. He said that, when he died, he wanted to be lowered into the giant mausoleum through the head of the bird. Bennett envisaged tourists entering the massive owl, and then climbing a circular staircase that would pass

by his coffin, suspended in the centre by chains. And at the top, visitors would enjoy some rather magnificent views.

However, the colossal stone owl was never built. If it had been, it would have been higher above sea level than the Statue of Liberty. But if you go to Herald Square in New York, there is a large monument to James Gordon Bennett Jr, erected in 1921. It includes the same sculpture of Minerva that stood at the top of the New York Herald Building. And late at night, if you crane your neck to look above the goddess, near the very top of the monument, there are a pair of Bennett's owls, with their eyes still glowing green.



PART 3: YOU WON'T BELIEVE YOUR EYES

Once you had got over the first shock of seeing something that was half horse, half bird, you started to appreciate the Hippogriffs' gleaming coats, changing smoothly from feather to hair, each of them a different colour: stormy grey, bronze, a pinkish roan, gleaming chestnut and inky black.

Harry Potter and the Prisoner of Azkaban

The Hippogriff is a mythical creature with the front half of an eagle and the hind half of a horse. The first record we have of a Hippogriff being mentioned by name is in the book *Orlando Furioso*. The title in English translates as 'Furious Roland' and it is an epic poem from 1516 by the Italian writer Lodovico Ariosto. In it, the character of Roland meets sorcerers, a gigantic sea monster and even gets a trip to the moon.

Ariosto took inspiration from the Roman author Virgil, who had used the union of a horse with a griffin as a metaphor for ill-fated love in his own writing. A griffin itself is a mythical beast with the body of a lion, and the head and wings of an eagle – essentially something that is completely impossible in the real world. As such, Ariosto uses the knights mounted on Hippogriffs as a symbol of the impossibility of and contradictions between chivalry and

passionate love, and how that love is complicated in the chivalric tradition.

'Hippogriffs!' Hagrid roared happily, waving a hand at them. 'Beau'iful, aren' they?'

Harry Potter and the Prisoner of Azkaban

In one of the drawings in the book, a knight called Ruggiero has tied his Hippogriff mount to a tree, which unbeknown to him is another knight transformed by an evil sorceress. In the meantime, her monstrous minions are approaching in the background. He's got to get away and at the same time he's travelling the countryside trying to rescue his long-lost love.



Harry Potter, at first, simply thinks the Hippogriff is one of the weirdest creatures he has ever seen!

Trotting towards them were a dozen of the most bizarre creatures Harry had ever seen. They had the bodies, hind legs and tails of horses, but the front legs, wings and heads of what seemed to be giant eagles, with cruel, steel-coloured beaks and large, brilliantly orange eyes. The talons on their front legs were half a foot long and deadly-looking.

Harry Potter and the Prisoner of Azkaban

Buckbeak and co. might have been beyond belief for Harry, but they were more than matched by some of the images of larger-than-life creatures that were brought back by some intrepid explorers in history...



If you're even slightly afraid of spiders, meeting an Acromantula, J.K. Rowling's species of giant, talking, human-eating spider, would probably be the most terrifying thing imaginable – just ask Ron Weasley.

And from the middle of the misty domed web, a spider the size of a small elephant emerged, very slowly. There was grey in the black of his body and legs, and each of the eyes on his ugly, pincered head was milky white. He was blind.

Harry Potter and the Chamber of Secrets

Thankfully, real-life spiders don't get as huge as the Acromantula, but spiders known as Avicularia are large enough to feast on birds, as illustrated in Maria Sibylla Merian's *Metamorphosis insectorum Surinamensium*, printed in Amsterdam in 1705. The hand-painted engravings depicted huge spiders eating birds, surrounded by webs and other creepy crawlies, though readers at the time wouldn't believe they were real.

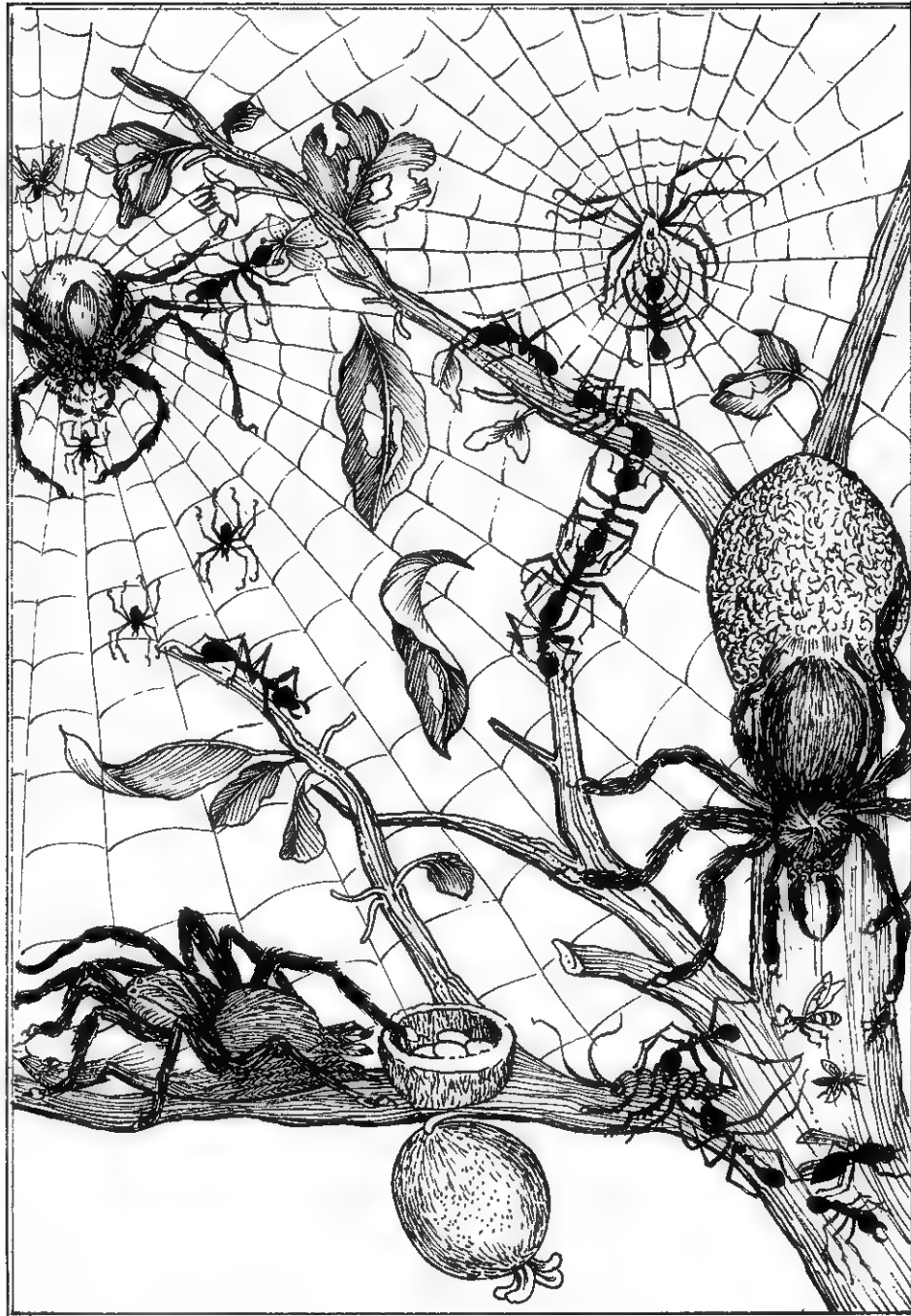
Aragog seemed to be tired of talking. He was backing slowly into his domed web, but his fellow spiders continued to inch slowly towards Harry and Ron.

'We'll just go, then,' Harry called desperately to Aragog, hearing leaves rustling behind him.

'Go?' said Aragog slowly. 'I think not...'

Harry Potter and the Chamber of Secrets

Maria Sibylla Merian was a pioneer. After she divorced her husband, she moved from Frankfurt to Amsterdam. She painted and studied local collections for eight years before the city of Amsterdam awarded her a grant to travel to Surinam to paint its flora and fauna. This was an almost unheard-of achievement at the time, since women weren't even allowed to go to university, and such grants were usually awarded to men.



Merian set off from Amsterdam to Surinam in 1699 and the expedition was probably the first scientific expedition led by a woman to observe natural phenomena in their native environment. Travelling to South America in the 1690s was extremely dangerous and required sailing across the Atlantic. Anyone attempting it had to risk serious

diseases with no cure, and then there was the prospect of venturing into the jungle with just your paints. Surinam was a sugar colony at the time and the only people living there were men making money out of sugar and the people they had enslaved to help them do it.

Maria Merian's pioneering approach to research was matched by her attitude to book production. She returned from Surinam with a sketchbook full of images of insects, many of them new to Western science, which she sold as a commercial enterprise. It was successful, though the bird-eating spiders were deemed beyond belief and a largely male audience thought Merian a fantasist. It wasn't until 1863 (150 years later) that it was agreed she was completely right. Like a lot of women who broke through barriers in history, particularly in science and business, Merian had to withstand persistent doubt and cynicism from the patriarchal society in which she lived.



PART 4: CREATURES OF THE DEEP

For thousands of years people have gazed into the oceans. Every now and then, something unusual emerges from the briny depths, and with them surface the stories: legends, fairy tales and sailors' yarns of half-human creatures with the tail of a fish. Some of these stories are of love and loss, some of death and drowning. If you want to spend some time with the world's most mysterious and captivating marine life, go and swim with mermaids.

In an early draft of *Harry Potter and the Chamber of Secrets*, Harry and Ron are introduced to mermaids much sooner than the Triwizard Tournament in *Goblet of Fire*. After they have commandeered the enchanted Ford Anglia, rather than smash into the Whomping Willow, they crash into the Hogwarts lake and encounter the mermaids that live there. The merpeople save the boys by flipping over the car and bringing it to the safety of the bank. But these mermaids aren't the enchanting beauties of popular folklore. One is described as follows: 'A cloud of blackest hair, thick and tangled like seaweed, floated all around her. Her lower body was a great scaly fishtail the colour of gun-metal; ropes of shells and pebbles hung about her neck; her skin was a pale, silvery grey and her eyes, flashing in the headlights, looked dark and threatening.'

An editorial note on the manuscript wonders whether the merpeople scene actually works, since they are not encountered again in the second book. There's a suggestion that the car could develop boosters and suddenly shoot out of the water, but ultimately J.K. Rowling decided to replace

the scene entirely with the car crashing into the Whomping Willow.



... would they pull him back down to the depths when the time was up? Did they perhaps eat humans? Harry's legs were seizing up with the effort to keep swimming; his shoulders were aching horribly with the effort of dragging Ron and the girl...

Harry Potter and the Goblet of Fire

Tales of sirens luring sailors to their deaths have been around for thousands of years, and feature in stories as far back as Homer's *Odyssey*. Sirens are sinister creatures and can be thought of as close cousins of the merpeople of the Harry Potter stories.

The oldest recorded merpeople were known as sirens (Greece) and it is in warmer waters that we find the beautiful mermaids so frequently depicted in Muggle literature and painting. The selkies of Scotland and the merrows of Ireland are less beautiful, but they share that love of music which is common to all merpeople.

Fantastic Beasts and Where to Find Them

One illustration from a 13th-century French bestiary shows three men in a rowing boat as a siren drags one of them into the water by his hair. The other two men aren't watching this; they are distracted by a centaur, or an onocentaur (as it's referred to in the bestiary), that has appeared on the shore of the lake.

This siren has a fish's tail, which is a change from how sirens were thought of before – as a woman's head with a bird's body – though the text indicates that she still lured the sailors with her birdsong. After that, it gets worse, because after dragging her victims into the water she promptly eats them.

A slightly later version of the mermaid-siren hybrid has been found in a 'game book' from 17th-century England. A game book was a sheet of vellum, or paper made from animal skin, folded to create a concertinaed game. Made as a bit of fun and to entertain, it was possibly given as a love token between a couple, or as a gift to a child. It could be pocketed quite easily and was taken around to entertain people.

The game included mythical beasts such as dragons, manticores and griffins. On each part of the main sections there was a different type of animal and creature, and by folding the flaps over the top of the mermaid, for example, you would transform your creature into a being with different body parts. You could leave the top half of the mermaid and fold over her scaly tail and give her some legs to fully become a woman. Or you could fold over the top of the lady's body and give her a man's torso so that you got a man-maid.

One creature in the game book was very like what we've come to think of as a traditional depiction of a mermaid, with her long blonde hair and bright red lips, carrying a mirror and comb and her tail finished with pink scales, ending in a bright blue fin. Although different from the merpeople you might find at Hogwarts, she wasn't to be

trusted and was surrounded with various verses describing the creature: 'Mermaids lure sailors, who leaving off their ship were found, / On shore, by my enchantments drown'd.'



At the beginning of the 18th century, a man called Samuel Fallours, an English-born ex-soldier, ended up on the Indonesian island of Ambon while working for the Dutch East India Company. He spent a long time on the beach, along with other artists. He painted the fish he saw in the hauls of the local fishermen, then sold his artwork to the rich. He found that the more brightly coloured the fish, the better the price.

So as time went by, the paintings became more elaborate: a plain, drab false-stone fish was made resplendent in vivid reds, yellows and blues; the shell of a crab was decorated with the moon; fish skins had brightly coloured stars, and some had human faces. There were seahorses replete with itty-bitty saddles for riding. And he included some equally fanciful descriptions, such as one of the four-legged anglerfish, which followed him around like a dog, and of the lobster that lived in the trees.

Then, in 1719, Louis Renard, a book-dealer, apothecary and spy based in Amsterdam (who sounds like he could very well have kept a shop in Diagon Alley), published the world's first book on fishes from the waters of the East Indies. It was called *Fishes, Crayfishes and Crabs, of Diverse Colours and Extraordinary Form, That Are Found Around the Islands of the Moluccas and on the Coasts of the Southern Lands* and was illustrated in full colour with Fallours' artwork.

In the end, the book contained pictures of over 415 fish, 41 crustaceans, two stick insects... and one mermaid. Supposedly caught off the coast of the Indonesian island of Borné, and measuring 59 inches in length, she reputedly lived in a tank of water for four days and seven hours and occasionally cried like a mouse. According to Renard, she refused to eat, despite being offered small fish.

When the book was published, the public questioned the accuracy of the eccentrically portrayed sea life, even with the affidavits attesting to the reality of the specimens Renard had included. And while people were rightly dubious, some scientists are now re-evaluating the scientific worth of the book. Minus the wild colouring, over 90 per cent of the fish can still be identified and, since Ambon's harbour has become heavily polluted, the type of fish in the area may have changed, in which case this whimsical book will have become a valuable record. It might just be that the mermaids have simply moved on to cleaner waters!



In 1942, Princess Alexandra, second Duchess of Fife and granddaughter of King Edward VII, presented a 'mermaid' to the British Museum that had been 'caught' around Japan some 200 years earlier. It was quite an alarming-looking creature, with its sharp-toothed silent scream, but was actually the torso of a monkey grafted onto the tail of a fish.

Statues of mermaids were surprisingly common and part of a growing trend in Europe in the 18th century, mostly hailing from Japan where there was a vogue for them. These types of mermaid became world-famous and some say they

were central to the fame of 'the Greatest Showman on Earth', P.T. Barnum.

Barnum displayed the 'Fiji Mermaid' around the United States in the 19th century – though it supposedly got burnt to ashes by a fire in the 1880s. Barnum's mermaid came on show around the time the duck-billed platypus was first revealed to the American public. The egg-laying mammal – with a beak like a duck and poisonous spurs on its legs – was so weird that people thought it must have been stitched together, but, since it was proved real, it seemed plausible that the mermaid might have been another newly discovered species too.

Another example of a mermaid, kept at the Horniman Museum in South London, has even been given the scientific classification of *Pseudosiren paradoxoides* – 'absurd pretend merman'. The Horniman took DNA samples, X-rays and even a CT scan. It actually has a real fish tail, but the head was built up by winding bundles of fibre around a stick of wood, which was then coated with clay, and had fish jaws embedded in it with an outer skin of pigmented papier mâché layered on top. Its arms are wire and papier mâché too and were tipped with bird claws to create the idea of fingers.



There's an interesting disconnect between these rather horrifying specimens (which owe much to the tradition of *ningyo* – Japanese supernatural creatures displayed in Shinto shrines) and the origins of the mermaid myth, coming from sailors who had seen exotic sea creatures like manatees and porpoises, which were transfigured in their minds into female mermaids.



PART 5: GHOSTS, TROLLS, GIANTS AND DRAGONS

Not until 1811 were definitions found that most of the magical community found acceptable. Grogan Stump, the newly appointed Minister for Magic, decreed that a 'being' was 'any creature that has sufficient intelligence to understand the laws of the magical community and to bear part of the responsibility in shaping those laws'.

Fantastic Beasts and Where to Find Them

As well as having magical creatures and fantastic beasts in the wizarding world, there are also entities that are harder to define. Ghosts are part of the 'Spirit Division' and can, of course, be found all over Hogwarts.

An exception was made for the ghosts, who asserted that it was insensitive to class them as 'beings' when they were so clearly 'has-beens'. Stump therefore created the three divisions of the Department for the Regulation and Control of Magical Creatures that exist today: the Beast Division, the Being Division and the Spirit Division.

Fantastic Beasts and Where to Find Them

As part of her research for the books, J.K. Rowling drew a sketch of Hogwarts ghost Nearly Headless Nick and showed how being 'nearly headless' works, depicting him with his head on normally and then demonstrating what it looks like with his head – nearly – off.

'Nearly Headless? How can you be nearly headless?'

Sir Nicholas looked extremely miffed, as if their little chat wasn't going at all the way he wanted.

'Like this,' he said irritably. He seized his left ear and pulled. His whole head swung off his neck and fell on to his shoulder as if it was on a hinge. Someone had obviously tried to behead him, but not done it properly.

Harry Potter and the Philosopher's Stone

The early version of the character has a collar rather than a ruff, and he's dressed in different historical attire.

'That does look good,' said the ghost in the ruff sadly, watching Harry cut up his steak.

'Can't you –?'

'I haven't eaten for nearly five hundred years,' said the ghost. 'I don't need to, of course, but one does miss it. I don't think I've introduced myself? Sir Nicholas de Mimsy-Porpington at your service. Resident ghost of Gryffindor Tower.'

Harry Potter and the Philosopher's Stone

The second most notable ghost at Hogwarts is, of course, Peeves the Poltergeist, who J.K. Rowling credits as the most notorious and troublesome poltergeist in British history. He has menaced the corridors of Hogwarts for over a thousand years. J.K. Rowling's 1991 illustration of Peeves resembles a malevolent court jester with his hat and bell, and his shoes with their curled toes. US audiobook narrator Jim Dale would later base his interpretation of Peeves on the British comedian Terry Scott, who was famous for pretending to be a little boy on the radio, even dressing in a school hat in front of the microphone.



NEARLY HEADLESS
NICK

Drawing of Nearly Headless Nick by J.K. Rowling (1991)



PEEVES THE
POLTERGEIST

Drawing of Peeves by J.K. Rowling (1991)

There was a pop and a little man with wicked dark eyes and a wide mouth appeared, floating cross-legged in the air, clutching the walking sticks.

'Oooooooh!' he said, with an evil cackle. 'Ickle firsties! What fun!'

He swooped suddenly at them. They all ducked.

Harry Potter and the Philosopher's Stone



Trolls bear a humanoid appearance, walk upright, may be taught a few simple words and yet are less intelligent than the dumbest unicorn and possess no magical powers in their own right except for their prodigious and unnatural strength.

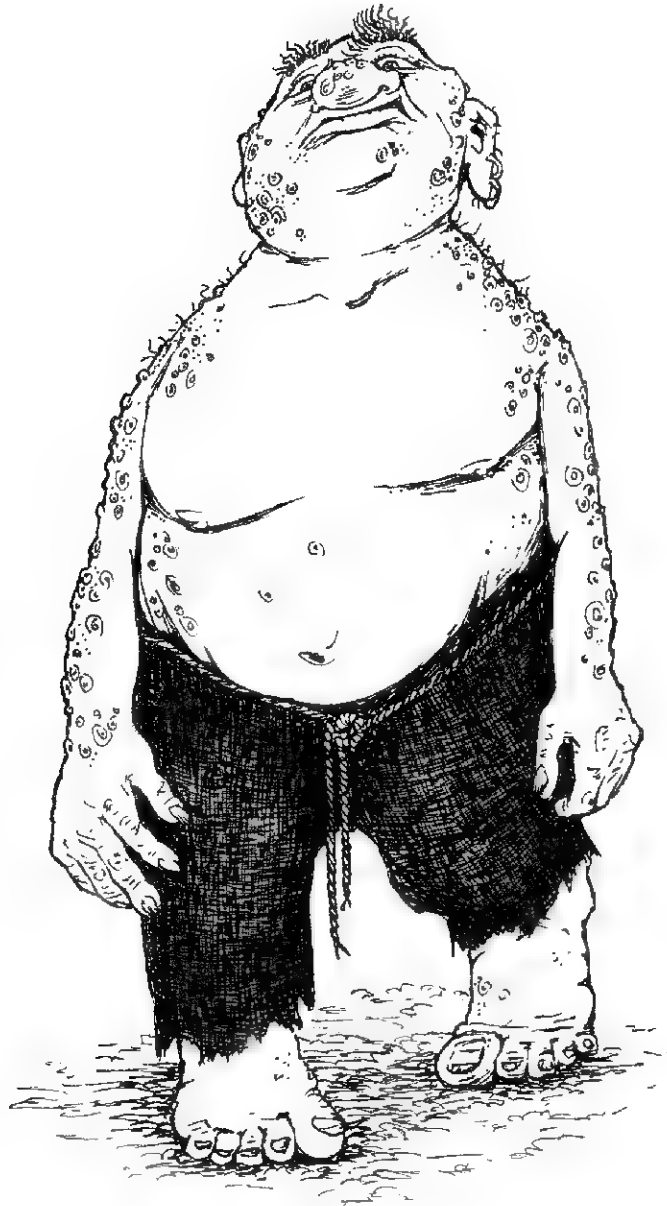
Fantastic Beasts and Where to Find Them

Aside from bringing the precious narwhal horn from northern Europe, the Vikings also brought with them their own stories and legends. One of the most enduring creatures from those tales was the troll – hot-tempered and a bit dim.

It was a horrible sight. Twelve feet tall, its skin was a dull, granite grey, its great lumpy body like a boulder with its small bald head perched on top like a coconut. It had short legs thick as tree trunks with flat, horny feet.

Harry Potter and the Philosopher's Stone

Trolls have long played an important part in folklore and fairy-tale traditions, so when we encounter one in Harry Potter, it might feel quite familiar. Trolls are lodged in our cultural subconscious and reside there just as they live under bridges in stories. They can be outwitted, but they are threatening and dangerous at the same time, often *because* of their lack of intelligence.



Howling with pain, the troll twisted and flailed its club, with Harry clinging on for dear life; any second, the troll was going to rip him off or catch him a terrible blow with the club.

Harry Potter and the Philosopher's Stone

The original scene in which Harry and Ron confront the terrifying troll in the girls' bathroom was significantly changed in the drafting, which was generally shortened to help it move at a faster pace. One thing J.K. Rowling simplified was the means by which the troll was trapped in the bathroom: by simply turning a key, rather than the elaborate method of using a chain to secure a bolt in the wall. The early draft also contains a deleted scene in which Harry, Ron and Hermione are being taught about trolls. The scene got cut, but the information about there being different varieties of trolls that live in different environments then got reused in the Hogwarts library book *Fantastic Beasts and Where to Find Them*.

There are three types of troll: mountain, forest and river. The mountain troll is the largest and most vicious. It is bald, with a pale-grey skin. The forest troll has a pale-green skin and some specimens have hair, which is green or brown, thin and straggly. The river troll has short horns and may be hairy. It has a purplish skin and is often found lurking beneath bridges. Trolls eat raw flesh and are not fussy in their prey, which ranges from wild animals to humans.

Fantastic Beasts and Where to Find Them

Trolls have been represented through the years sometimes as vicious man-eating creatures, and at other times as more amiable, though deeply stupid, lumps of meat. How they were portrayed depended on the different prejudices and fears invested in them as fictional beings.

Harry then did something that was both very brave and very stupid: he took a great running jump and managed to fasten his arms around the troll's neck from behind. The troll couldn't feel Harry hanging there, but even a troll will notice if you stick a long bit of wood up its nose, and Harry's wand had still been in his hand when he'd jumped – it had gone straight up one of the troll's nostrils.

Harry Potter and the Philosopher's Stone



'So you have been to look for giants?' said Harry, grinning as he sat down at the table.

Hagrid set tea in front of each of them, sat down, picked up his steak again and slapped it back over his face.

'Yeah, all righ', he grunted, 'I have.'

'And you found them?' said Hermione in a hushed voice.

'Well, they're not that difficult ter find, ter be honest,' said Hagrid. 'Pretty big, see.'

Harry Potter and the Order of the Phoenix

There are giants and then there are *giants*. In 1638, Jesuit monk Athanasius Kircher was on a trip to Italy to study

volcanoes and caves when he found himself in the middle of one of the region's biggest earthquakes. He became obsessed about what might have caused the earthquake under the ground and subsequently wrote a book called *Mundus subterraneus* ('The Underground World') about the whole subject. It covered a massive range of subjects when it was eventually published in 1665: geography, geology, archaeology, palaeontology, ocean currents and farming.

Many of Kircher's ideas seem fantastical to us now, but he was one of the great minds of his age – some compare his breadth of knowledge and interests to Leonardo da Vinci. His theory in *Mundus subterraneus* was that 'the whole earth is not solid but everywhere gaping and hollowed with empty rooms and spaces and hidden burrows'. He got a little fantastical after that – his caverns contained wonders, including dragons, and he told a story about a vast human skeleton found sitting in a cave on Mount Erice in Sicily.

'You went poking around dark caves looking for giants?' said Ron, with awed respect in his voice.

Harry Potter and the Order of the Phoenix

One illustration in his book supposedly reconstructed this '*Gygantis sceleton*'. The huge giant he pictures holds a massive tree trunk as if it's merely a stick, as he towers over other famous giants, including one purportedly from Switzerland, all of which Kircher says have been found. On Kircher's scale, it has humans at a third of the height of the biblical giant Goliath.

His depiction of the Swiss giant swamps Goliath, who, in turn, is tiny compared to the giant from the North-West African country of Mauritania. But they all pale in

comparison to the Sicilian giant, who at 300 feet is as tall as Big Ben or the Statue of Liberty. The discovery in Mount Erice was purported to have taken place in the 14th century; somehow the seated skeleton had retained the integrity to stay together in that position.

Although Kircher's book included magical elements like giants, dragons and a map with the location of the submerged island of Atlantis, it was a serious attempt by a brilliant mind to understand the world. Kircher wanted to see whether volcanoes were linked together under the earth – he even climbed into Mount Vesuvius, which had erupted seven years earlier. He was nothing if not intrepid!



If the motorbike was huge, it was nothing to the man sitting astride it. He was almost twice as tall as a normal man and at least five times as wide. He looked simply too big to be allowed, and so wild – long tangles of bushy black hair and beard hid most of his face, he had hands the size of dustbin lids and his feet in their leather boots were like baby dolphins.

Harry Potter and the Philosopher's Stone

Everyone's favourite giant, or rather half-giant, is Hagrid: loyal friend, mother to Norbert the dragon, owner of a magical pink flowery umbrella and one of Harry's father figures. He's an elemental character, living in the margins,

on the edge of the Forbidden Forest. And, beyond that, he's also very hairy.

'If he wants ter go, a great Muggle like you won't stop him,' growled Hagrid. 'Stop Lily an' James Potter's son goin' ter Hogwarts! Yer mad. His name's been down ever since he was born. He's off ter the finest school of witchcraft and wizardry in the world. Seven years there and he won't know himself. He'll be with youngsters of his own sort, fer a change, an' he'll be under the greatest Headmaster Hogwarts ever had, Albus Dumbled-'

Harry Potter and the Philosopher's Stone

Everyone has their own idea of who Hagrid is, what he looks like and how he talks.

When Jim Dale recorded Hagrid for the US versions of the Harry Potter audiobooks, he pitched his voice low and rough, like a cross between Long John Silver and a big old uncle he had. The result was that he immediately lost his voice when he performed it in the studio. A long six-page anecdote Hagrid tells after being asked whether he's had a nice holiday took Dale days to record.

'Oh, well - I was at Hogwarts meself but I - er - got expelled, ter tell yeh the truth. In me third year. They snapped me wand in half an' everything. But Dumbledore let me stay on as gamekeeper. Great man, Dumbledore.'

Harry Potter and the Philosopher's Stone

J.K. Rowling was late to the first day recording the UK audiobook of *Harry Potter and the Philosopher's Stone*, but when she arrived she was especially keen that the narrator, Stephen Fry, got the voice of Hagrid right. Luckily they both heard the same voice in their heads. Fry honed in on the tender and gentle way that Hagrid spoke to Harry, especially the way he used Harry's name so much when he addressed him. It was this tenderness from a character of such huge size and clumsiness that shaped Hagrid's voice.

J.K. Rowling has also illustrated Hagrid herself – Hagrid with Harry at Gringotts bank – in a scene from *Philosopher's Stone*, travelling in one of the goblin's carts down into the vaults. As they hurtle at speed in the cart driven by the goblin Griphook, the oversized Hagrid is squeezed into the cart and covering his eyes with one of his giant hands. By contrast, Harry's eyes are wide open, glimpsing fire and wondering at its source.



Drawing of Harry and Hagrid at Gringotts by J.K. Rowling

Harry's eyes stung as the cold air rushed past them, but he kept them wide open. Once, he thought he saw a burst of fire at the end of a passage and twisted around to see if it was a dragon, but too late – they plunged even deeper, passing an underground lake where huge stalactites and stalagmites grew from the ceiling and floor.

Harry Potter and the Philosopher's Stone



Probably the most famous of all magical beasts, dragons are among the most difficult to hide. The female is generally larger and more aggressive than the male, though neither should be approached by any but highly skilled and trained wizards.

Fantastic Beasts and Where to Find Them

The fire-breathing dragon of Gringotts, hinted at in that scene from *Philosopher's Stone*, is met properly in the final book when Harry, Hermione and Ron escape from Gringotts in *Deathly Hallows*. An early draft manuscript of the scene was full of arrows, crossings-out and sentences scrawled in the margins – it was a breathless piece and instead of writing dialogue at this stage, J.K. Rowling indicated where it should be added later by putting an 'x' there instead. It's an

example of her wanting to put the essence of the scene down on the page as quickly as possible in order to capture it, knowing that she would rework it later on.

Another section of the handwritten draft has Harry destroying the Hufflepuff Horcrux while the others are in the Lestrange vault. In the final version of the book, this is performed by Hermione – a change that makes sense and adds a certain symmetry, allowing Harry, Ron and Hermione to destroy a Horcrux each.

He stretched out an arm; Hermione hoisted herself up; Ron climbed on behind them, and a second later the dragon became aware that it was untethered.

With a roar it reared: Harry dug in his knees, clutching as tightly as he could to the jagged scales as the wings opened, knocking the shrieking goblins aside like skittles, and it soared into the air.

Harry Potter and the Deathly Hallows



‘Well, I’ve bin doin’ some readin’,’ said Hagrid, pulling a large book from under his pillow. ‘Got this outta the library – Dragon-Breeding for Pleasure and Profit – it’s a bit outta date, o’ course, but it’s all in here.’

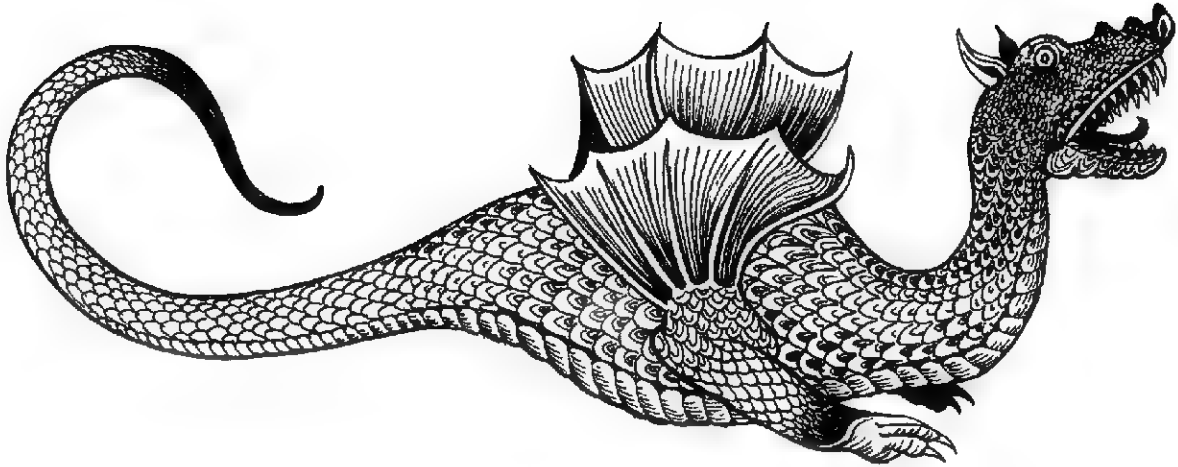
Harry Potter and the Philosopher’s Stone

Gringotts wasn't the only place in the series to contain dragons. As you might remember, before the Triwizard Tournament Harry was desperately pulling down 'every book he could find on dragons' before he was due to meet one face to face in the first task. He could have probably done with Ulisse Aldrovandi's *Serpentum et draconum historiae* ('A History of Snakes and Dragons'), published in 1640, nearly sixty years after Aldrovandi's death.

Ulisse Aldrovandi decided not to become a doctor so he could study his passion – what we'd call 'natural history' today. He was known as the Bolognese Aristotle and amassed an outstanding 'cabinet of curiosities', a collection of extraordinary specimens, oddities and natural wonders. It had thousands of items and was described in its time as 'the eighth Wonder of the World', and one of his most amazing exhibits was said to be a dragon. The book he wrote to catalogue his collection is a veritable array of dragons, snakes and beasts.

Four fully grown, enormous, vicious-looking dragons were rearing on their hind legs inside an enclosure fenced with thick planks of wood, roaring and snorting – torrents of fire were shooting into the dark sky from their open, fanged mouths, fifty feet above the ground on their outstretched necks.

Harry Potter and the Goblet of Fire



One of the varieties of dragon Aldrovandi illustrated was the Ethiopian dragon, and he even distinguished between them by the types of ridges they had on their backs. In *Goblet of Fire* Harry is confronted with an array of dragons whose different characteristics and features are consistent with those 'captured' by self-professed natural historians like Aldrovandi.

There was a silvery blue one with long, pointed horns, snapping and snarling at the wizards on the ground; a smooth-scaled green one, which was writhing and stamping with all its might; a red one with an odd fringe of fine gold spikes around its face, which was shooting mushroom-shaped fire clouds into the air, and a gigantic black one, more lizard-like than the others, which was nearest to them.

Harry Potter and the Goblet of Fire

In 1572, none other than Pope Gregory XIII had a dragon problem and, as the world's foremost expert, Aldrovandi was the man he called in. Aldrovandi also happened to be

the pope's cousin. A fearsome dragon was found in the fields of Bologna and was seen as a bad omen. Once the creature had been captured and its body given to Aldrovandi to do research on, and to deduce what it might foretell for the future of the papacy, Aldrovandi wrote up a report on dragons for the pope. He concluded that the Bologna dragon was a good omen.

At this time, Europe was a very religious society expanding into new territories, and to its inhabitants, it wasn't beyond the realms of possibility that a dragon might exist, particularly in India or Ethiopia. To superstitious Europeans, who were seeing all sorts of weird and wonderful specimens being brought back from overseas, a dragon could have been just one more new curiosity.

After his death, Aldrovandi's vast collection was donated to Bologna University. Over the centuries, the collection has been split, pillaged or lost. Out of the thousands of pieces, only a fraction remains. But if you visit Bologna you can book a tour of the University Library and still see a small part of the eighth Wonder of the World.



PART 6: FANTASTIC BEASTS – REAL AND IMAGINED

Bestiaries and descriptions of strange and wonderful creatures go back hundreds of years. But just as these beasts could be derived from reality and then take off in an extraordinary direction, so it is true that some animals are purely fiction and have to be conjured in an artist's head. *Fantastic Beasts and Where to Find Them*, as illustrated by artist and 'accidental illustrator' Olivia Lomenech Gill, is a modern version of one. She is an expert printer and a third of the artwork for the book consisted of copperplate etchings printed on her own three-ton press. It's the same printing technique that was used to create Audubon's snowy owls.

Olivia was already fascinated by antiquarian books and old natural history illustrations, and she went straight to the early natural history encyclopaedia *Historia animalium* by Conrad Gessner for inspiration. Rather than lean on digital techniques and modern technology, Olivia wanted to reach back – to re-embrace the simplicity and tactile processes that have been the hallmarks of making art since images were painted onto the walls of the Lascaux caves in France nearly twenty thousand years ago.



The phoenix is a magnificent, swan-sized, scarlet bird with a long golden tail, beak and talons. It nests on mountain peaks and is found in Egypt, India and China. The phoenix lives to an immense age as it can regenerate, bursting into flames when its body begins to fail and rising again from the ashes as a chick.

Fantastic Beasts and Where to Find Them

The phoenix has long been imagined as a beautiful, magical bird that consumes itself in fire but rises again from the ashes, symbolising rebirth and hope. Images depicting this mythical process can be found in texts dating as far back as the 13th century, when a medieval bestiary illustrated a phoenix green in hue and burning in bright red flames.

It was said that the phoenix could be found in Arabia and that it lived for 500 years before it made its own funeral pyre from leaves and branches, sat within it, fanned the flames with its own wings and caught alight. After the ninth day, the legend had it rising from the ashes reborn, with clear symbolism derived from the story of the resurrection of Christ.

Another book published in Paris in 1550 is entirely dedicated to the phoenix: *L'Histoire et description du phoenix* ('The History and Description of the Phoenix') by Guy de la Garde. The meticulous image of a red-bodied phoenix, with flames seemingly bursting out from the top of a tree trunk, is captioned: 'A description of the phoenix and its fortunate place of residence, of its long life, pure conversation, excellent beauty, diverse colours, and of its end and remarkable resurrection.'

colledis aromati uirgul
 ul. rogam sibi instruo.
 & conuersa ad radium so
 lis alarum plausu uolū
 tarium sibi incendium
 mittit seq; urit. p̄stea
 ū die nona aut de anen
 bus suis surgit. Hui figu
 ram gerit dñs nr ihc xpc
 qui dicit potestatem habeo
 ponendi animam meā



& iterū sumendi eam. Si ergo fenix mortificandi atq;
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 cendit nāq; saluator nr de celo alas suas suauitatis odorib;
 noui & uetis testam̄i repleuit. & in ara crucis seipm deo
 p̄ri p̄ nobis opulit. & tertia die resurrexit.



De la Garde dedicated the book to Princess Marguerite, a patron of the arts and sister of King Henri II of France, probably in an attempt to gain favour by associating her with such a beautiful and miraculous creature as a phoenix. In mythology phoenixes were also associated with the sun god, Helios, and depicted with seven rays of light coming out of their heads, much in the manner of a crown.

'First of all, Harry, I want to thank you,' said Dumbledore, eyes twinkling again. 'You must have shown me real loyalty down in the Chamber. Nothing but that could have called Fawkes to you.'

He stroked the phoenix, which had fluttered down onto his knee. Harry grinned awkwardly as Dumbledore watched him.

Harry Potter and the Chamber of Secrets

Jim Kay's beautiful illustration of Fawkes the phoenix, which can be found in his illustrated edition of *Harry Potter and the Chamber of Secrets*, was inspired by the hoatzin, which looks like it might have been a prehistoric bird, and uses the tiny claws on its wings to clamber about. Kay was also inspired by Audubon for the study, which bursts with colour and life.

The bird, meanwhile, had become a fireball; it gave one loud shriek and next second there was nothing but a smouldering pile of ash on the floor.

Harry Potter and the Chamber of Secrets



While the phoenix is a magical bird with Christian associations, the simurgh is an Iranian thunderbird found in a 1698 book from India called *Collection of Rarities* by Sultan Muhammed Balkhi. With an orange head and wings of four striped colours (yellow, light and dark blue and a purple-tinged red), as well as long tail feathers of gold, green, red and blue, it is a very striking bird.

The simurgh was traditionally portrayed in pre-Islamic Iran as a composite creature with snarling canine head, forward-pointing ears, wings and a peacock-like tail. In Persian literature, the simurgh was usually depicted in flight with swirling tail feathers. It's best known for its part in the epic Persian story *Book of Kings*.

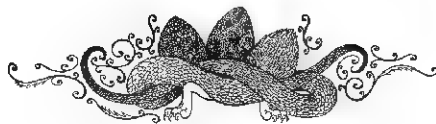
In the story, the hero, Zal, is abandoned as a baby on a high mountain by his father, the king, because he was born with white hair. But the wise simurgh rescues him and raises him in her nest. Time passes and Zal grows into a noble young man. The king realises the foolishness of his decision and prays to God for forgiveness, and the simurgh returns his son. Saddened, she gives Zal three feathers, telling him that if he ever finds himself in trouble he must burn them, and she will appear. Zal then summons the simurgh when his wife Rudabah is near death during a difficult labour. The simurgh appears and instructs Zal on how to perform a caesarean section, saving his wife and child in the process. Subsequently, as king of the birds, the simurgh became a metaphor for God in Sufi mysticism and – since no one has

ever seen one – the subject of all kinds of imaginative creations.



Magical creatures are as central to the Harry Potter stories as Harry, Hermione and Ron. A trusty cat, toad or owl might accompany pupils to Hogwarts, and they would almost certainly encounter a troll and an array of ghosts while they were there. From well-known folkloric creatures such as giants, dragons and merpeople to lesser-known beings such as the Acromantula and Hippogriffs, they all play a key role in Harry fulfilling his destiny as the Boy Who Lived. And, as the early drafts by J.K. Rowling show, these were some of the most exciting and dynamic scenes to write.

Naturalists and explorers over the centuries have been just as thrilled by the possibility of such animals existing in our world, travelling the globe to encounter weird and wonderful creatures and attempting to push the development of science in the process. But magic has always crept in, because fundamentally humans want to believe in the unbelievable – that a narwhal tusk is actually a unicorn horn – and so the bestiaries and cabinets of curiosity from the medieval period onwards have found a thrilling new life in the Harry Potter stories and *Fantastic Beasts* film series. If you care enough for magical creatures in your imagination, they will enhance your life in return!



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